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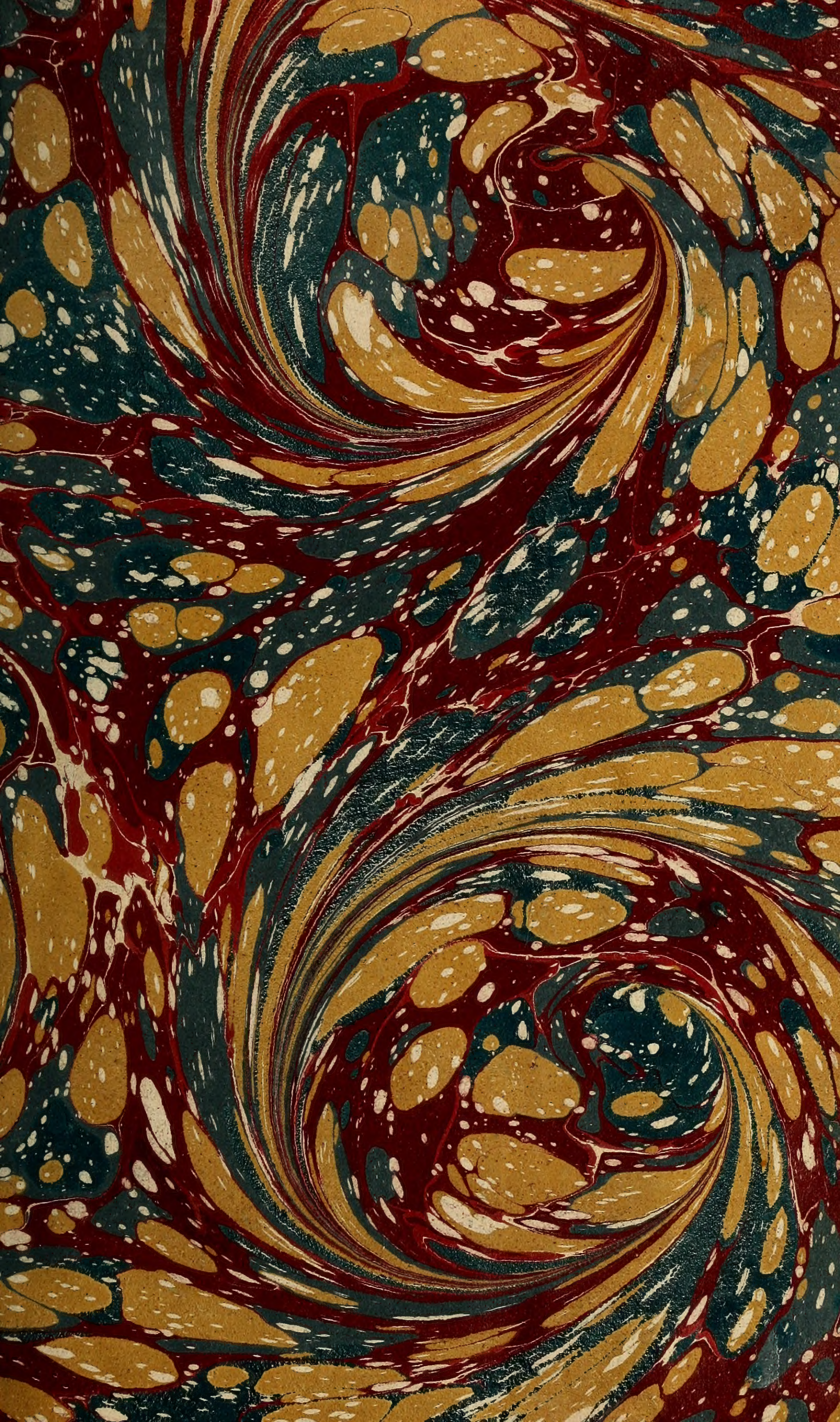

Edward S. Marshall

1889

THE

PHYTOLOGIST.

A BOTANICAL JOURNAL.

EDITED BY
ALEXANDER IRVINE,
FELLOW OF THE BOTANICAL SOCIETY OF LONDON.

VOLUME THE SECOND.

Ὡς ἐμεγαλύνθη τὰ ἔργα σου, Κύριε!—πάντα ἐν σοφίᾳ ἐποίησας.
ΨΑΛΜ. ργʹ. 24.
Benedicite universa germinantia in terra Domino; laudate et superexaltate EUM in secula.—*Hymn. iii Pueror. v.* 76.

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PREFACE.

THE Table of Contents prefixed to this Volume shows an increase of subjects, and a greater variety of matter than that which preceded the first volume of the New Series. The List of Contributors is also augmented. From these facts it is confidently believed that the circulation of the 'Phytologist' is enlarged.

The Annual Address to the Subscribers and Readers will contain what is usually communicated in a Preface.

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HOLLY.

Holy hath berys (berries) as red as any rose,
They foster the hunters, kepe hem from the doo.
Ivy hath berys as black as any slo,
Ther com the oule and ete hym as she go.
Holy hath byrdys (birds) a ful fayre flok,
The nyghtyngale, the poppyngy, the gayntyl (gentle?) lavyrok.
Good ivy, what byrdys ast (hast) thou?
None but the howlet, that "how, how!"

Har. MS.

THE PHYTOLOGIST.

1857.

ADDRESS *to the Readers of the* PHYTOLOGIST, *and specially to the Contributors.*

THE Editor is *now* divested of his plurality, and, being thus reduced to a *unit,* he means in the present Address to commune with his supporters in the singular number. He hopes that this *unity* of editorship may be a token of the *unity* existing among British Botanists, and of their *unity* of purpose, desire, and labours in the cause, and for the progress of British Botany, of which the 'Phytologist' is the exponent, the humble, but zealous advocate. He is not a little gratified that there is no occasion for his adverting to the proceedings of the past year, except in this one instance above mentioned, viz. the announcement of the change of the term *Editors* into *Editor.* He is thankful that he has to write about the *present* and the *future,* and *not* about the *past.*

The past year and the work done therein are both alike beyond recall and control. The year 1856 is now to be reckoned as one of "the years beyond the flood." The doings of the bygone year are matters of history, and will be estimated by their effects or fruits. The contents of the previous numbers of this periodical are appealed to as a proof that the botanists of Britain, or their representatives, have done something for the cause of botanical science during the period since the New Series of the 'Phytologist' was commenced. Any further statement or exposition of past labours modesty forbids.

The Editor, while he thinks it unnecessary to write about *former* acts, which are before all his readers, begs leave very respectfully to communicate his views and wishes in relation to the *future*—the *agenda,* the things to be done. The *present,* which will soon be a part of the past, is included in the term *future;* and the present communication or programme is a statement of what he, the Editor, wishes to do, or to get done, for British Botany during the present or current year, which is the opportunity for usefulness, the time for work and labour to be done by all who have work to do, and time and skill for doing it. But he, the Editor of this Journal, could not expect the Contributors to the last volume to co-operate with him in his endeavours to promote the science in question, unless he showed that he is sensible of realized favours—*memor beneficiorum.* He begs to assure each and all who contributed to the last issued volume of the 'Phytologist' that he is deeply indebted to them for their kind and effective and disinterested assistance. He cordially and sincerely offers this public acknowledgment, and regrets that he cannot afford more substantial proofs of his obligations and gratitude. He further hopes that those who have sent communications that have not yet appeared in print will have patience with him. Every article hitherto sent for insertion in the 'Phytologist' would have been published in its pages if space had admitted; and it is to be hoped that every article in the Editor's possession will ultimately be so printed. *Chacun à son tour.*

In reference to the proceedings or progress of the current year, there are three topics on which the Editor desires briefly to communicate with the readers of, but especially with the contributors to, the periodical for which he is responsible.

In the first place, he is anxious to get as complete a list as possible of common plants. The list published in May, 1856, must be considerably curtailed: it was originally drawn up rather too comprehensively, with the view of subsequently modifying it on further observations and by the help of communications. Several facts have been noted, and some communications have been received, which will help the Editor in determining what are common and what are not common plants. There is one list of common plants received from a contributor which he thinks it will be advisable to print *in extenso;* but he hopes and wishes that all contributors who have any information to communicate on the subject of common plants will confine themselves to either of the two lists, *i. e.* the list of May, 1856, or the list subsequently to be published. This course is suggested by obvious reasons.

Mere names of plants are only interesting to a few botanists who take an interest in the range and relative plenty or scarceness of species. The results or deductions from such lists will ultimately be both instructive and interesting to all classes of readers; but while the subject is under consideration and undetermined, it is like a piece of unfinished work, disagreeable to the beholder.

Another point is also important in times of economy and retrenchment, viz. the additional expense of printing lists of plants. This is not a lugubrious entreaty for condolence or sympathy, nor an appeal *ad crumenam,* to the breeches-pocket of the subscribers. Yet it is a fact that the 'Phytologist' does not pay the expense of paper and printing; but let not the subscribers and readers imagine for an instant that the proprietors wish or expect their supporters to make any extraordinary efforts for the financial interests of the periodical. They only hope that, under existing circumstances, they may not have to provide for an increased expenditure on the item of printing.

The second thing the Editor desires to carry out is a suggestion offered by a contributor, and which cannot be brought to bear any fruit whatever unless by the co-operation of several good botanists. It was suggested or recommended as a desirable and practicable thing that all critical British plants should be submitted to some good practical botanist, who would undertake to compare them and publish in the 'Phytologist' the result of his comparisons. It will be readily admitted that the decisions of any judge, however competent, would be of small value and of less authority unless he had the means of forming a correct estimate of the characteristics of critical species. And in order that a sound opinion might be obtained, it was further hinted that botanists from divers quarters of the British Isles should be invited to send to the Editor of the 'Phytologist' examples of all critical plants growing naturally within the bounds, or within a reasonable distance of their respective abodes. By comparing an extensive series of critical species, grown probably under varying conditions, as much evidence might be procured as would be available in the determination of the distinctness or *non*-distinctness of the so-called critical plants. It would be rashness to predict that the decision so obtained, under said circumstances, would give universal satisfaction, or would be implicitly submitted to as true and just. There are few who prefer others' eyesight or observation to their own. But it is believed to be both a good and a feasible suggestion, and the Editor of the 'Phytologist' is willing to aid in carrying it out. He will undertake to compare, or cause to be compared, all such examples of critical plants (if submitted to him), or of such plants as are doubtful or ambiguous, or about which there is any prevalent discrepancy of opinion or judgment, and he will cause the results of the said comparison to be published in the only or chief periodical devoted to the progress of British Botany.

The *third* thing has also been recommended and desired by several contributors and subscribers. It is that the 'Phytologist' should gradually become a medium for circulating the *desideratæ* of its readers, or, in other words, should be used as a means for effecting a change of specimens of British plants. As it is desirable that the 'Phytologist' should be made extensively useful, both for the sake of the readers and for the profit of the proprietors, the above suggestion has already, to some extent, been carried out. Where it is not convenient for the persons who wish to exchange to do so directly, such exchange may be effected through the publisher. When it can be effected directly, it will be less expensive. It is advisable that those who wish to exchange should state not only what plants they are in want of (*desideratæ*), but also what specimens they have to supply in return for such as they require. It is also desirable, when the 'Phytologist' is used as the vehicle of circulating their wants, that these should be limited to not above a dozen names of plants for any *one* insertion.

The Editor desires this to be clearly understood, viz. that in thus publishing his intentions of aiding *all* who wish to exchange specimens of British plants, he has not the most remote intention of interfering with the legitimate functions of the Botanical Society of London, neither of infringing upon its privileges, nor of superseding it as a medium of public usefulness. His aim is to be useful, though in a *small way* and at as small a cost as possible, to those who may honour the 'Phytologist' by employing it as the medium for giving publicity to their wants.

Some of the most influential friends of the 'Phytologist' have repeatedly suggested that a general index to the entire series of the Journal, from its commencement in June, 1842, to July, 1854, inclusive, would be a very desirable addition to our botanical literature. The Editor has often felt the great inconvenience resulting from this deficiency, and he has now the satisfaction of announcing to British botanists that, with the sanction of the proprietor of the Old Series, this want is in a fair way of being speedily supplied. A general alphabetical index has been prepared, at a very considerable expense of time and labour, and it will appear in consecutive portions as an addendum to the New Series of the 'Phytologist,' at a not inconsiderable expenditure of money, which, it is to be hoped, the increased sale of the Journal will reimburse. A portion of this general index will probably appear in the next number.

Some typographical changes have been made in the present volume—changes which will improve the appearance of the work, and have a tendency to facilitate reference, research, and comparison. The Index, it is true, when the volume is completed, will render reference easy; but it is sometimes necessary to refer to antecedent numbers before the completion of the period conveniently included in one volume. It is also thought desirable to give greater prominence to the headings or titles of articles, and to introduce and maintain a certain uniformity in the typographical department of the work.

Having now briefly stated his wishes and intentions in reference to the forthcoming monthly numbers of the 'Phytologist,' the Editor respectfully takes leave of his supporters, wishing them the customary felicitations of the season.

Chelsea, January 1, 1857.

Note.—The purchasers of the 'Phytologist' will perceive that the index and prefatory matter contained in this, the first number of the new volume, is exclusive of the usual quantity of matter *always* supplied; and the proprietors beg to state further, that the Alphabetical Index to the whole work, to be published by instalments in successive numbers of the present series till completed, will constitute an extra supply of matter without any extra charge. The usual number of pages will be devoted to the current matter, and the General Index will be additional. Indemnification for this outlay is expected from a larger circulation.

TOUR IN SCOTLAND.

Botanical Tour in the Highlands of Perthshire: Killin, Finlarig, Auchmore, Kinnell, Ben Lawers, etc.

The 14th of July was fine; and in the morning we started to go up Glen Lochay in quest of the rare *Cystopteris montana,* a plant only recently known as a British species. Breadalbane is the only district in Scotland where it is known to occur, and its collection is still interesting. Its locality was previously ascertained as accurately as possible. One or several of the numerous ravines or correis that intersect the mountain at right angles to Glen Lochay, are said to produce this rare fern. These correis, or *correys,* are all watercourses, or the beds of torrents that sometimes, in summer, contain but little water. The term, which is Gaelic, is evidently from the same root as the French *courir,* to run, which is from the Latin *curro,* I run.

This word *run* is truly characteristic of the streams here, whether they be great or small. In the south of England there are rivers with a current so slow that it is occasionally impossible to tell which way the water flows; for this fluid seldom *runs* in the south and east of our island. But in Scotland it is never difficult to ascertain the course of rivers, for they always flow, often run, and sometimes rush with headlong impetuosity. Cæsar, in his Commentaries on the Wars in Gaul, informs his readers that the Arar is so sluggish in its motions that it is impossible to tell by the eye in what direction it flows (*in utramque partem fluat*). We were once in the same predicament about the course of the Medway, between Edenbridge and Ashurst, in Kent. A straw dropped into the stream from the bridge in a brief space decided the course of the stream, and ours also.

These *correys* extend from Glen Lochay up the hill which separates this Glen from Glen Dochart; and by following them up to the ridge, and descending on the other side, Glen Dochart may be reached.

This rare Fern has certainly been found in the correys that are at right angles to, and on the right bank of, the river Lochay; but it may be, and probably has been, found on the Ben Lawers side of this glen. It is found on Ben Lawers. The rain compelled us to retrace our steps, and hindered our seeing it in the correys of Glen Lochay. The same day one of us visited the old fir-wood of Finlarig; an equally fruitless visit, for our search for *Linnæa borealis* was in vain. Though we were disappointed in the chief object of our long walk up the glen, a few novelties rewarded our perseverance.

Meum athamanticum, "the Highlander's Tobacco," was one of our captures. The Highlanders, however, disowned "the soft impeachment;" they recognized the plant, but ignored the name. The search for *Linnæa* in the woods of Finlarig resulted in our gathering of *Oxyria reniformis* and *Saxifraga oppositifolia*, just out of flower. There is a fine burn rushing through the wood, with many a rapid and cascade, and on its green banks the *bonnie* flowers are plentiful. Whether *Linnæa borealis* be of the number or not, it was then rather too early to see. But if any botanist goes to look for the plant in the upper part of this wood, we recommend the right side of the burn, not above a stone's throw below its entrance into the enclosure. If he has more definite instructions for the *Linnæa*, and consequently no occasion to use these, he may still find in this spot something interesting to a botanist; and if not, he will, in the ceaseless roar of the headlong, rushing brook, in the beauty of the scene, and in its peaceful seclusion, find something exceedingly pleasing to a lover of nature. This lovely spot is but a very short distance from Killin: not above two miles.

On this day (14th July) *Campanula rotundifolia* was observed in flower for the first time. It was then barely in flower about Killin on the 17th, but on the 19th, when we went to Kenmore, it was found in full flower. This little fact shows that the temperature about Killin is less favourable to early vegetation than that of the other end of the lake is. The appearance of the crops at the upper and at the lower end of Loch Tay, showed us that productions of more importance were affected by the same causes, whatever they may be, which influenced the flowering of the blue bell of Scotland.

The 15th, St. Swithin's, was, as usual, a rainy day. This superstition is not prevalent in Scotland. In that ancient kingdom the Saints are quite forgotten; and the days on which they are commemorated in England, and in Christendom generally, are there neither religiously nor superstitiously regarded. In the highlands of Perthshire, neither St. Paul nor St. Swithin rule the clouds and winds, as they are vulgarly supposed to do here.

There, all the influences of the Saints are attributed to the moon. That this luminary plays an important part in the regulation of the temperature, the rain, the wind, and other atmospheric agencies, is as seriously believed in Scotland as the *jus divinum* of *Presbytery* is by a true-blue Presbyterian.

The 16th was like its predecessor, but not quite so unfavourable. We were able in the afternoon to visit the ruins of the ancient castle of the Campbells, and the mausoleum of the remote and more recent members of that ancient and noble family. We of course heard the account of its being burnt down; and the present erection, with provident foresight, has been built fire-proof. The remains of the illustrious dead are disposed in suitable catacombs, which are bricked up when the bodies are interred. We did not linger long among the narrow "mansions of the dead;" and, as the subject is a *sombre* one, no more need be said about it. But Finlarig Castle and the Marquis's Mausoleum are the chief lions of Killin; and here it would be considered disrespectful, and a grievous offence, to leave them unvisited. The grave of Fingal and the burial-place of the Macnabs are invested with a poetic and sacred interest, and strike sympathetic chords in the heart of a believer in Ossian and in a genuine descendant of the Macnabs. The Campbells and their retainers in like manner venerate the very burial-place of their chiefs. At Finlarig we collected *Mœhringia trinervia,* Clair., *Arenaria trinervis,* Sm., a plant not of common occurrence in these parts.

As our botanical discoveries at Killin were not very important, the following subjoined list is given as the result of better observation than ours, or at least of more successful researches:—*Draba rupestris, Stellaria cerastoides, Dryas octopetala, Epilobium alsinifolium, Sedum villosum, Saxifraga cernua, S. rivularis, Linnæa borealis, Erigeron alpinum, Saussurea alpina, Azalea procumbens, Gentiana nivalis, Veronica alpina, V. fruticulosa, Listera cordata.* Several of these we know grow near the summit of Ben Lawers; others probably may be collected on Craigchailleach, Craig-nahain, and on other rocks on this chain nearer to Killin. These plants are deservedly of great interest, but they do not occupy so prominent a position in the landscape of the region where they grow as they do in the estimation of the botanist. In the evening we lectured to the pupils of the Parochial School, and the clergyman honoured the occasion by courteously presiding.

On the 17th, a fine morning, we took leave of Killin, having been here just a week. It is true, we did not do much in the botanical way, but we learned much that was interesting about the physical, moral, and religious condition of the population. The walk along the left bank of Loch Tay from Killin is not very picturesque, at least for the first four or five miles: plantations circumscribe the prospect rather more than is agreeable. Near Killin a view of the lake is to be enjoyed only here and there, where there is a break in the woods which surround its sides. Two or three miles from Lawers the road passes over an open country, and the scenery improves. The people, in little companies, were going to church, and this very much increased the interest of the walk. In Scotland the Thursday before the administration of the holy sacrament is a day of preparation. In the church of Lawers this ordinance was to be celebrated next Sunday. This is the sole grand festival of the Scottish church, and it is hallowed by two days' preparation, Thursday and Saturday, on the former of which all work is suspended, as it is on the Lord's-day, and on Saturday all attend Divine service in the middle of the day; and, as the following Monday is a day of thanksgiving, many such solemnities would be exceedingly inconvenient. Yet when it is considered how eagerly old and young avail themselves of this solitary opportunity of testifying their obedience and their love to the sacred Author of this holy rite, it does appear to be a subject of regret that this can only be done once in the long period of twelve months. Here we enjoyed an extensive view of Loch Tay, which was on our right, and of the majestic Ben Lawers, which was on our left, with its massive roots extending across our road, and terminating in the shore of the lake. Ben Lawers Inn was reached about eleven o'clock, after a pleasant walk of about three hours.

On the roadside we observed *Habenaria viridis, Gentiana campestris,* and *Sedum anglicum,* with many other interesting species noticed before.

Ben Lawers might have been ascended from Killin with somewhat less walking than we incurred. There is a road to Glen Lyon branching off the Killin and Lawers road, about two or three miles from the former place. By walking along the Glen Lyon road till opposite the summit of Ben Lawers the mountain would have been reached in less time than we spent in walking to Lawers from Killin. The Glen Lyon road may be compared to the hypothenuse of a right-angled triangle, and we should have walked by this line instead of by the two sides of the same: it is a mathematical axiom that any two sides of a triangle are greater than the third side, and consequently the way from Killin by Lawers to the mountain is somewhat longer than that by the Glen Lyon road: *quod erat demonstrandum.* But as few roads are made as straight as mathematical lines (no Highland roads are so) it is not easy to calculate the distance that might be saved by adopting any assumed line of travel. Time is the sole practicable measurement of distance where there are no roads, or only defective or partial ones; and as we did not go the Glen Lyon, but the Lawers road, the saving which would have been the result of going straight from Killin to Ben Lawers cannot be truly stated. While at the former place we heard that it was no unusual feat to walk from Killin to Ben Lawers and back again in a day: women did it. We did not hear if botanists did it. The distance is said to be eight or nine miles; but as the Scotch, like the Irish, give good measure of distances, especially when the quality of the road is but indifferent, we will estimate the distance from Killin to the summit of Ben Lawers at ten miles. This distance and back we could easily have accomplished; but our object, of course, was somewhat more comprehensive than the reaching of the summit, and trying to see Edinburgh and Stirling, and the German Ocean and Aberdeen, and Ben Nevis and the Islands of the far West.

About ten hours would have been requisite for botanical purposes, and in that space of time we should have walked about twenty miles more. This, with the journey back to Killin, would have required more muscular exertion than we could safely undertake, and more time than even a summer's day could supply. The ascent from the inn at Lawers is not perhaps the nearest (shortest) course that could be selected from the road. There is a point a mile or so on the Killin side of Lawers, which appears to be nearer to the summit than the inn is; but here there is no resting-place for the traveller. The ascent might be easily made from the other, or Kenmore end of Loch Tay. In summer there is a coach by Aberfeldie, Kenmore, Killin, Tyndrum, Inveraven, etc., to the head of Loch Lomond. This coach passes Lawers in going to Killin, etc., about ten o'clock. The traveller might have his breakfast comfortably at Kenmore, and come within three or four miles of the top of Ben Lawers by ten o'clock, leaving him a good long day for his botanical pursuits. Clever, clean-limbed youths from the adjoining cottages are said to reach the summit of the mountain in an hour; but suppose the ascent to occupy an hour and a half, there are still eight or nine hours for botanizing. The botanist will do well to secure his quarters for the night at Lawers Inn, from which, if his time and the weather permit, he may ascend the mountain *ad libitum*. If he has once fairly seen the mountain, its appendages and approaches, in a moderately clear day, he may ascend it alone without any apprehensions of either losing his way or coming on steep, rocky precipices, down which it might be impossible to descend. But for botanizing on Ben Lawers at the least expenditure of time, exertion, and money, we prefer a plan broached by one of our Scottish correspondents, and published in the 302nd page of the 'Phytologist' for 1856. The outlines of the plan proposed, but not yet carried out, so far as we know, was to associate a certain number of active botanists, who were to be provided with a portable tent, supplying sufficient accommodation for passing the night on the mountain.

When we returned homewards by Aberfeldie we called upon a botanical friend, who told us that he and some others passed a night on Ben Lawers, with no protection from the cold but what a projecting rock might have afforded. This is a sacrifice of comfort which only a very ardent botanist can make. But with a small tent, which a stout youth could carry up to or near to the summit, and with a supply of provisions and a little fuel, the night, or even several nights, might be passed, even on this inhospitable-looking locality. Many sheltered nooks, or even cavities, are to be found, dry enough for spreading a heather-bed on, and the protection of a tent would suffice to preserve several persons from the effects of the cold, which at that altitude is very intense. In this latitude and in summer the nights are very short; properly speaking, there is no night there during several weeks, and the cold before sun-rising, though severe, is but of short duration. A still more comfortable method of ascent might be devised, though not so efficient for botanical purposes, as the nocturnal *bivouac* on the mountain. A horse and cart, with a driver to take care of the quadruped during the ascent of those parts inaccessible to any kind of carriage, might be obtained at Killin for ten shillings. Provisions, with a kettle for boiling water (an Englishman cannot travel without a teakettle, this is a necessary part of his equipage), some fuel, and other trimmings, might be all conveyed in the cart, which would also supply conveyance for the weaker members of the fraternity. If the party were to start about one o'clock on a fine summer morning, they would be in time to see the sun rise from the summit, and would have all the day before them for botanizing; but for the solitary botanist we do not know any more independent and pleasant way of realizing a day's recreation on this, the prince of botanical localities, than that which has been pointed out above, viz. to get as near the mountain as possible by coach, ascend, botanize, and descend to Ben Lawers Inn, and to start, after a night's rest, on a fresh expedition, either up the hill again or along its ridge, in the direction of Glen Lochay and Killin.

SETTLE PLANTS.

A List of Plants found near Settle. By DR. WINDSOR.

(*Continued from Vol. I. page* 351.)

Habenaria bifolia. Kelcowe. Fields about Giggleswick Tarn, etc.

Habenaria viridis. Not uncommon about Settle, as about Giggleswick Tarn. Major Springs. Stackhouse Borrins. Above Cavehole Woods, etc.

Orchis pyramidalis (*flore albo*). Gainsbrowe, near Eshton.

Orchis ustulata. Found very plentifully one year in the waste ground below Birkbeck's Weir.

Orchis latifolia. Sides of rivulets near Giggleswick Tarn. Bogs at the foot of the Crags.

Gymnadenia conopsea. Hillocks near Giggleswick Tarn. South end of Kelcowe. Mill Island, etc.

Gymnadenia albida. About Giggleswick Tarn, especially on the hillocks on the north-east side.

Ophrys apifera. I found it plentifully, July 5th, 1807, in a narrowish meadow, called Martin's, adjoining Mr. Wilson's Wood, Eshton Hall. (Thorpe-Arch Woods, Yorkshire, 1854, *Mr. Bohler.*)

Ophrys muscifera. Kelcowe. Lord's Wood. Stackhouse Borrins. By the foot-road-side to Stackhouse, at the margin of the wood near Langcliffe Place. Field below Major Springs.

Listera ovata. Not uncommon, as in Kelcowe. Mill Island. Major Springs, etc.

Listera cordata. Plentiful on the western ascent to Ingleborough.

Neottia Nidus-avis. Under the shade of the hazels in High-ridge Wood, where in 1806 I found five specimens of it. In 1798 Mr. T. W. Simmonds found a large specimen of it in Kelcowe. (In 1844, found in King's Wood, near Roche Abbey, Yorkshire, by Mr. Bohler.)

Epipactis latifolia. Wood near Langcliffe Place. High-ridge Wood. Woods about Arncliffe, etc.

Epipactis ovalis (Babington) (or *E. latifolia,* var. *β,* of Smith). Loose stones below Giggleswick Scar, and in Cavehole Wood. Clefts of rocks above Gordale.

About the year 1810 I collected, at the request of Sir J. E. Smith, recent specimens of this plant for the inspection of himself and Mr. Sowerby; the former thought it might be the *parvifolia* of Ehrhart, but Mr. Sowerby informed me that he could not decide upon its being a distinct species.

Epipactis palustris. In the further part of the wood near Langcliffe Place.

Cephalanthera ensifolia. Helk's Wood, near Ingleton.

Cypripedium Calceolus. In the narrow wood called East Field Wood, and the adjoining ones, near Arncliffe.

About the year 1804 or 1805 a few specimens of this rare and beautiful plant were pointed out to me in this locality, by a relative of my own, Miss Petty, of Arncliffe. Whether it still exists, as it formerly did, in Helk's Wood, near Ingleton, I do not know.

Zanichellia palustris. Giggleswick Tarn, on the east side, near the boat-house. This *quondam* beautiful tarn, or lake, is now, unfortunately for the botanist, drained off for agricultural purposes. Notwithstanding this change, I have thought it best to record the names of several plants which formerly adorned its site and adjoining localities.

Typha latifolia. Giggleswick Tarn.

Sparganium ramosum. Ditches in several places near Settle, Giggleswick, and Rathmell.

Sparganium simplex. In similar situations to the last, in several places.

Sparganium natans (*minimum* of Bab.). Giggleswick Tarn. Lawkland Moss.

Carex dioica. Boggy places at the lower end of Kelcowe. Bogs between the turnpike and Giggleswick Tarn.

Carex pulicaris. Bogs near Giggleswick Tarn, and other places near Settle.

Carex stellulata. Near Giggleswick Tarn.

Carex curta. On the edge of Malham Tarn.

Carex ovalis. On the edge of Giggleswick and Malham Tarns. On the roadside above Swobeck.

Carex remota. Holling Hall Wood. Settle Crags.

Carex intermedia. Edge of Malham Tarn. Further Wood, near Langcliffe Place.

Carex vulpina. Ditch in Leeming Lands.

Carex sylvatica. High-ridge Wood. Further end of Kelcowe, etc.

Carex Pseudo-cyperus. Betwixt Penyghent House and Penyghent.

Carex limosa. Kendall's Gill. Boggy places near Giggleswick Tarn, and in the wood near Langcliffe Place.

Carex pallescens. Lawkland Hall Wood. Further High-ridge Wood. Settle (Peart's) Crags.

Carex flava. Not uncommon, as in Kelcowe, Kendal's Gill, near Giggleswick Tarn, etc.

Carex Œderi. Neighbourhood of Settle.

Carex fulva. Boggy places in the Further Wood near Langcliffe Place.

Carex distans. Settle Crags, along with *Carex remota.*

Carex binervis. Near Giggleswick Tarn.

Carex præcox. Common near Settle.

Carex pilulifera. Right-hand side of the road between Holling Hall and Huggon House. Pastures between Giggleswick Tarn and High-ridge Wood, and above Stackhouse Borrins, etc.

Carex panicea. Kendall's Gill. Edge of Giggleswick Tarn.

Carex glauca (*recurva* of Smith). Not uncommon, as on pasture above Stackhouse Borrins, and amongst the stones north of Attermire Cave, etc.

Carex vulgaris (Bab.). Not uncommon, as on the south-west side of Giggleswick Tarn, etc.

Carex stricta. With *C. vulgaris* (Bab.) near Giggleswick Tarn.

Carex acuta. About Giggleswick Tarn.

Carex paludosa. Near Settle.

Carex riparia. Side of the ditches in Settle Ings.

Carex vesicaria. Near Giggleswick Tarn.

Carex ampullacea. Ditch in Attermire Field and near Giggleswick Tarn.

Carex hirta. Kendall's Gill. Settle Ings.

Myriophyllum spicatum. Rivulet near Beggar-wife's Bridge, in Giggleswick. In a ditch opposite Birkbeck's Weir, near the foot-road to Rathmell.

Arum maculatum. Common about Settle.

Poterium Sanguisorba. Kelcowe.

Salix purpurea. On the banks of the Ribble below Settle Bridge.

Salix purpurea (var. δ, *Lambertiana*). Near Settle.

Salix Helix. Below Settle Bridge. Mill Island.

Salix Forbyana? Near Settle.

Salix triandra. By a ditch-side between the Ebbing and Flowing Well and Giggleswick Tarn. (Betwixt Melling and Greta Bridge, below the hill, *Mr. John Howson.*)

Salix pentandra. On the banks of the Ribble below Settle, and in the watery lane betwixt Giggleswick and Beggar-wife's Bridge.

Salix nigricans. By the Ribble-side at Cammock, below Settle.

Salix bicolor (Sm.) (*laurina* of Bab.). The Ribble-side, near Langcliffe Place.

Salix fragilis. On the roadside near Lawkland.

Salix fragilis, var. γ, *Russelliana.* (Between Melling and Greta Bridge, below the hill, *Mr. J. Howson.*)

Salix tenuifolia (Sm., or *S. laurina*, var. β, *tenuifolia*, of Bab.) Mill Island. Wood near Langcliffe Place. Hesleden Gill, near Penyghent. Banks of the Lime above Kirkby Lonsdale Bridge.

Salix repens (Sm.) or *fusca*, var. *a*, *repens* (Bab.). In the same field where *Polygonum viviparum* grows, between Feizor and and Wharfe.

Salix aurita. In several places near Settle.

Salix caprea. Near Settle.

Salix aquatica (Sm., or *S. cinerea*, var. *β*, *aquatica*, of Bab.). On the banks of the Ribble. Between the turnpike-road and Giggleswick Tarn.

Salix acuminata. Near Settle.

Salix viminalis. Hedge in Leeming's Lands.

Salix alba. Giggleswick.

Salix herbacea. (Ingleborough and Penyghent, *Mr. John Howson*.)

Empetrum nigrum. Abundantly on Black Fourscore Acre, near Settle.

Myrica Gale. Plentifully on Lawkland Moss.

Humulus Lupulus. On the roadside between Giggleswick and Kelcowe. In a field between Upper Settle and Rundley Bridge.

Tamus communis. North-west end of Kelcowe.

Rhodiola rosea (*Sedum Rhodiola*). Foal-foot, Ingleborough. West side of Penyghent.

Juniperus communis. On Moughton, near Wharfe, plentifully.

Taxus baccata. Giggleswick Scar. Cavehole Wood.

Equisetum arvense. Mill Island, etc.

Equisetum Telmateia (*E. fluviatile*, Sm.). Wood near Langcliffe Place. Banks of the Ribble near Cammock, etc.

Equisetum limosum. Near Settle.

Equisetum palustre. Near the old site of Giggleswick Tarn.

Ophioglossum vulgatum. Near the higher end of the middle division of High-ridge Wood. July, 1813.

Botrychium Lunaria. Hills between the turnpike and the old site of Giggleswick Tarn. Field above Major Springs. High-ridge Wood.

Lycopodium clavatum. Above Meer-beck. Penyghent. Ingleborough.

Lycopodium selaginoides. Abundantly in a bog on the east side of Malham Tarn. In a field on the left-hand side between Long Preston and Swindon, with *Schœnus nigricans*, etc., June 23rd, 1813. Side of a rivulet springing from Giggleswick Scar, beyond the first milestone.

Lycopodium Selago. Plentifully on the ascent to Ingleborough. Penyghent. Fourscore Acre, above Settle.

Lycopodium alpinum. Ascent to Ingleborough, plentifully.

Allosorus crispus. On Ingleborough little hill, plentifully. Swobeck, near Settle. On a wall in Mitchell Lane, above Settle.

Polypodium vulgare. Walls, etc., common.

Polypodium Phegopteris. Wood on the lower side of the road opposite Cavehole Wood. In the Gill near Huntworth House. Along with *Polypodium Dryopteris* opposite the slate-quarries in Helk's Wood, near Ingleton.

Polypodium Dryopteris. In the station mentioned above under *P. Phegopteris;* also in a wood opposite Helk's Wood.

Polypodium calcareum. Loose stones near Attermire Cave (with *Lastrea rigida*). East Field Wood, near Arncliffe. Giggleswick Scar. Scar above Malham Tarn. I have in my notes a mark of interrogation to this last habitat, but think it correct.

Lastrea Oreopteris. Kendal's Gill. Giggleswick. Cavehole Wood.

Lastrea rigida. In company with the late T. W. Simmonds (and I am not certain whether it had not been previously known to him and Wm. Kenyon), I found this plant first in the year 1802, growing plentifully in the loose stones between Attermire Cave and the place where *Epilobium angustifolium* was found growing, in the clefts of rocks a little to the north of Attermire Cave. We were afterwards well acquainted with this Fern, but *L. rigida* not being then enumerated amongst British plants, we misnamed it *spinulosa.* About the year 1810 I showed specimens of it to Mr. Sowerby, Sen., who said it was not *spinulosa,* of which he gave me a specimen, but did not then seem to recognize it as a new species. Perhaps it will therefore be admitted that we were the first discoverers, although not the first describers of this plant, which has been since found in other localities of the district.

Lastrea spinulosa. Lower part of Cavehole Wood, below the road and Kendal's Gill, near Giggleswick.

Lastrea Filix-mas. Not uncommon about Settle.

Lastrea dilatata. Crags near Settle. Kendal's Gill, Giggleswick. Wood below Cavehole Wood, etc.

Polystichum Lonchitis. (Limestone rocks between Langcliffe and Malham Tarn, *Mr. J. Howson, Jun.*)

Polystichum aculeatum. With *Lastrea rigida* north of Attermire Cave. Crevices of rocks above Gordale. In several places about the foot of Ingleborough.

Polystichum aculeatum, β, lobatum. (Winskill Wood, *Mr. John Tatham.*) I have several specimens which I had previously collected near Settle, some approaching to, if not quite, *Polystichum angulare.*

Cystopteris fragilis. Not uncommon on walls, etc. near Settle.

Cystopteris fragilis, var. γ, *C. angustata* (Sm.). (Catterick Force, *Mr. J. Tatham.*)

Athyrium Filix-fœmina. Lodge Gill. Wood below Cavehole. Crags, etc.

Asplenium Adiantum-nigrum. Kendal's Gill, Giggleswick. Wall on the right-hand side of Ingleton Brow.

Asplenium Trichomanes. On walls at Langcliffe, etc.

Asplenium viride. On rocks called Beacon Scar or Wordell Knotts, nearly opposite Attermire Cave. Rocks on the roadside between Stackhouse and Feizor. Rocks between Darnbrook and Arncliffe. Also between Settle and Malham, and in a hole by the lead-mines near Stockdale.

Asplenium Ruta-muraria. Wall near Giggleswick School. Kelcowe, etc.

Scolopendrium vulgare. Kelcowe. Giggleswick Scar, etc.

Ceterach officinarum. In 1801 (the first year of my botanical studies), I found this plant in tolerable plenty in the fissures of the impending rocks a little east of Malham Tarn.

Blechnum boreale. Kendal's Gill. Wall between Wordell and Roome. About Giggleswick, etc.

Pteris aquilina. Woods, etc. Common.

ON THE GORMIRE EPILOBIUM.

By J. G. BAKER.

Below the edge of the moorlands, five miles to the east of Thirsk, five hundred feet below the precipitous scars of Whitstoncliffe, is a picturesque lakelet, about a mile in circumference, known by the name of Gormire, which has been formed in the hollow caused by a slip of the inferior oolite; to the botanist affording a convenient repository from which to select a varied range of weeds:—paludal and lacustral from the depths; *Potamogeta* and *Characeæ* from the margin; *Heliosciadium inundatum* and *Pilularia, Mnium affine* and *Sphagnum contortum, Potentilla comarum* and

Menyanthes trifoliata, and last, but not least, *Lysimachia thyrsiflora.* The north-east corner is specially overgrown with vegetation; and hereabouts, thickly scattered amongst the spongy and treacherous morass, the plant which is the subject of the present notice may principally be seen. It was noticed by Mr. Borrer on his visit to the station about a dozen years ago, and is mentioned, under the name of *virgatum,* in the account of his tour in the second volume of the 'Phytologist' (page 425). In the 'Supplement to the Flora of Yorkshire,' it is alluded to (page 68) under the head of *palustre.* Since 1850, I have distributed so many specimens to my private correspondents, and through the medium of the London Botanical Society, that it must have found a place in the *herbaria* of a large proportion of our collectors. In the *fasciculus* of critical plants which I issued a short time ago it is marked, "No. 9, *Epilobium,* allied to *virgatum* (*chodorhizum*), Fries." During the last few years our knowledge of the British representatives of the genus, and their diagnostics, has improved considerably; but the following description will suffice to show that, from all that are described in the fourth edition of the 'Manual,' this clearly differs.

Stem 1½ to 2 feet high, much branched above, quadrangular in the lower part, procumbent and creeping widely at the base, sending out rootlets and stolons. Stolons numerous, elongated, leafy, at the flowering time slender, the lower ones afterwards thickened, and bearing a rosette of obovate leaves. Leaves lanceolato-ligulate, varying considerably in breadth, when narrow nearly or quite entire, when broader sparingly denticulated, narrowed more or less gradually below to a decurrent haft. Sepals lanceolate; stigmas entire at first, finally sometimes quadrifid; seeds about half a line long, oblong-fusiform, broader above.

The shape of the leaves is quite peculiar. They are usually but little broader than those of *palustre,* and when wider are narrowed to the base more gradually than in either *obscurum* or *tetragonum.* Of the species to which it is most closely allied—from *tetragonum, Lamyi, chodorhizum,* and *obscurum,* it may be known by its nutant buds; from the two former, by its elongated stolons and radicant habit of growth; from the two latter, by its narrower seeds. From *palustre,* which at a casual glance it most resembles, the decurrent leaves, angular stem, and *tetragonum*-like seeds, will sufficiently distinguish it. If it is a new species, I would suggest that *ligulatum* would be a not inappropriate name.

P.S.—To the courtesy of Mr. Hardy, of Hulme, I am indebted for specimens of precisely the same *Epilobium* that grows at Gormire, from uliginal situations on Hale Moss, near Altringham, in Cheshire; and am informed by Mr. Buxton (the author of the Manchester Flora) that it has been known to him for many years, and recognized as a distinct species. At Hale it grows in some places in juxtaposition with the true *palustre*.

MOSSES IN THE ISLE OF MAN.

Primitiæ of the Bryology of the Isle of Man. By JOHN H. DAVIES.

In the month of July of the present year, I devoted a few days to the agreeable task of investigating the Bryological productions of the Isle of Man; and as I am not aware of anything that has been published on the subject, I thought it possible that the result of my observations might not be entirely devoid of interest to the readers of the 'Phytologist.'

The island, as a glance at my list will show, is by no means contemptible as a Bryological locality; and should any one take the trouble to explore it more efficiently than my limited stay permitted me to do, he would be able, I doubt not, to make many valuable additions to the list of species.

The lithological constitution of the island is almost solely of the character which my friend Mr. Baker calls eugeogenous; and the absence of such Mosses as *Tortula tortuosa, Neckera crispa, Anomodon viticulosus, Encalypta streptocarpa*, and *Trichostomum flexicaule* is very striking to one who, like myself, has been principally accustomed to dysgeogenous strata. Probably the Silurian limestone at Castletown may furnish them, but this I did not manage to visit. The paucity of wood and rock renders the hills not very prolific, but this deficiency is amply compensated in the glens.

For the convenience of those of my readers who may be unacquainted with the geography of the district, perhaps a short paragraph on the situations of the various places I may have occasion to mention in the list may not be thought superfluous. The island is about thirty miles long by fifteen in its broadest part. Castletown is situated on the south coast, Douglas about midway on the eastern side, and further north, at distances of from three to five miles from each other, are Onchan, Laxey, and Ramsey. On the western coast we have Peel, with the ruins of its famous castle, celebrated alike in history and fiction. Near Peel is Glen Moij, which can boast of a pretty little waterfall—an old haunt of the fairies; the rocks here would, I doubt not, repay a careful examination, but the waters of the stream are so muddied by the washing of the ore at the lead-mines above, that they will not prove very productive. The centre of the island is occupied by a series of hills that reach an elevation generally of about 1400 or 1500 feet; some of the peaks are considerably higher than this, and Snafell, the culminating point, is 2007 feet above the sea-level. From the eastern side of Snafell, Glen Laxey opens out one of the most delightful spots in the island, and rich in muscological productions. The stream which winds through the glen moves the immense wheel at the Laxey lead-mines, which is said to be the largest in the world.

1. *Andreæa Rothii,* Web. and Mohr. Fruits on wet rocks at the head of Glen Laxey, also at the north-east side of Snafell.
2. *Sphagnum cymbifolium,* Ehrh. With ripe capsules in Glen Laxey, etc.
3. *Sphagnum compactum,* Brid. Sparingly near the summit of Snafell.
4. *Sphagnum acutifolium,* Ehrh.
5. *Sphagnum cuspidatum,* Ehrh.
6. *Sphagnum contortum,* Schultz.
7. *Sphagnum squarrosum,* Persoon.

   All four species fruit in Glen Laxey, the three latter but sparingly.
8. *Phascum subulatum,* Lin. On a shady bank in Glen Doo, near Douglas.
9. *Weissia controversa,* Hedw. On banks everywhere abundant.
10. *Dicranum pellucidum,* Hedw., and its var. *fagimontanum,* Wils. In the stream near Castletown, in Glen Laxey, etc.
11. *Dicranum squarrosum,* Schrad. Plentiful in Glen Laxey, but barren.
12. *Dicranum heteromallum,* Hedw. Frequent.
13. *Dicranum varium,* Hedw., and two or three varieties. Frequent.
14. *Dicranum scoparium,* Hedw. Glen Laxey, etc.
15. *Dicranum palustre,* Brid. Glen Laxey, etc.
16. *Dicranum majus,* Turn. Glen Laxey, etc.

17. *Ceratodon purpureus,* Brid. On walls, heaths, etc. in great profusion.
18. *Campylopus flexuosus,* Brid. Glen Laxey.
19. *Campylopus longipilus,* Brid. Head of Glen Laxey and Snafell. A variety without the diaphanous tips to the leaves (var. *calvus,* Wils. MS.) occurs in Glen Laxey.
20. *Pottia truncata,* B. and S. Glen Laxey.
21. *Didymodon rubellus,* B. and S. On walls, etc. frequent.
22. *Trichostomum rigidulum,* Smith. In similar situations to the preceding.
23. *Tortula unguiculata,* Hedw. Walls and banks.
24. *Tortula fallax,* Hedw. Shady banks.
25. *Tortula vinealis,* Brid., var. β, *flaccida.* On a bank near Ballasalla, Castletown.
26. *Tortula muralis,* Hedw. Frequent.
27. *Tortula subulata,* Brid. Frequent.
28. *Tortula ruralis,* Hedw. Frequent.
29. *Hedwigia ciliata,* Hedw. Intermixed with *Racomitrium lanuginosum* on rocks in Glen Laxey.
30. *Schistidium apocarpum,* B. and S., and its var. *rivulare.* Glen Laxey, etc.
31. *Schistidium maritimum,* B. and S. Sea-cliffs, especially those of Onchan Bay (near Douglas). Not unfrequent.
32. *Racomitrium aciculare,* B. et S. On stones in the stream near Castletown, etc.
33. *Racomitrium protensum,* Al. Braun.
34. *Racomitrium fasciculare,* Brid.
35. *Racomitrium heterostichum,* Brid.
36. *Racomitrium lanuginosum,* Brid.
37. *Racomitrium canescens,* Brid.

Glen Laxey with fruit, that of *Racomitrium fasciculare* just rising.

38. *Phycomitrium polyphyllum,* B. and S. Glen Laxey, plentiful.
39. *Orthotrichum affine,* Schrad. On trees at Ballarats, Castleward, and Onchan near Douglas, but in very small quantities.
40. *Orthotrichum diaphanum,* Schrad. On an ash-tree in Glen Doo, near Douglas.
41. *Orthotrichum pulchellum,* Smith. Intermixed with the next species, in Glen Laxey.
42. *Orthotrichum phyllanthum,* B. and S. Very common, more particularly in the vicinity of the coast. It does not exhibit any partiality in its choice of habitat; almost every tree is

clothed with it in the neighbourhood of Ramsey, Douglas, and Peel, and I noticed it too on the rocks on which Peel Castle is built.

BOTANICAL NOTES, NOTICES, AND QUERIES.

INQUIRY RESPECTING SENECIO SARACENICUS. *By* J. G. BAKER.

"It is evident," writes M. Godron ('Flore de France,' vol. ii. p. 118), "that under the name of *S. saracenicus* Linnæus has confounded two distinct species. First, that which he has cultivated in the Upsal Botanic Garden and which is clearly distinguished by its 'great size and mostly creeping root.' This grows in the plains, upon the banks of streams, and especially in osier-grounds, and is the *S. salicetorum* of the 'Flore de Lorraine.' Second, the other, to which applies not only the synonym of Fuchsius, but all the synonyms quoted by Linnæus (excepting that of the *Hortus Upsaliensis*), and to which also belong, without exception, all the localities in which Linnæus indicates his plant." The last-mentioned of these is the *S. Fuchsii* of Gmelin and Koch, and may be known by its oblique root-stock and short stoloniform buds; the other is the plant which bears so much the appearance of an indigenous Briton, about Seabergh, Milton, and other places in West Yorkshire and Lancashire. But may we not be uniting more than one species under the name of *S. saracenicus*, in this country? A specimen, received some time ago through the medium of the London Botanical Society from one of the Edinburghshire stations, is plainly *S. Doria* of Linnæus, a native of the South of Europe, recognizable by its finely serrated fleshy leaves, semi-amplexicaul and subdecurrent on the middle of the stem, and hairy seeds. Perhaps some of the readers of the 'Phytologist' may be able to furnish further information on this matter.

Thirsk, 29, 2, 1856.

MARITIME SAGINÆ. *By* J. G. BAKER.

Sagina, Linn.—Sect x., sepals, petals, styles, and valves of capsules, 4.

Stirps S. maritimæ.—Central stems forked and elongated, mostly glabrous. Leaves and sepals blunt and awnless.

1. *S. maritima*, Don.—*S. stricta*, Fries. Stems moderately branched, erect; peduncles rigid, erect, ascending. Leaves blunter than in the others. Sepals less concave, outer pair nearly equalling the oval truncate subsessile capsule.—*Jord. Pl. Crit., frag.* 3, *tab.* 5, *fig. A.* Sandy seashores; not uncommon.

2. *S. densa*, Jord.—Stems much branched, erect, forming dense tufts; peduncles short, rigid, ascending. Leaves narrower than in the others. Outer sepals equalling the capsule, which is less oval than in the others, and stalked.—*Jord. tab. cit. fig. B.* Christchurch, Hants, and probably Wisbeach, Camb.—*Bab. Man.* 4. Coatham marshes, N. Yorks. !—*J. G. Baker.*

3. *S. debilis*, Jord.—Stems sparingly branched, suberect or procumbent; peduncles long, drooping, filiform. Outer sepals equalling the stalked oval capsule.—*Jord. tab. cit. fig. C.* "Often called *S. maritima* in England."—*Babington.* Our specimens are from Coatham, N. Yorks.

ASPLENIUM ANCEPS.

The following is from the proceedings of the Dublin Natural History Society (March 14th, 1856) :—

The Chairman then called on Mr. Andrews for his paper on Madeiran forms of Ferns at Killarney.—

Mr. Andrews said that in his review of the botany or zoology of a country or district he had always been desirous of tracing affinities and geographical distribution, and the identity of animals or plants in different countries. He had already brought before the Society the occurrence in Kerry of some of the plants of Cornwall, and numerous instances of those of Portugal. He now wished to draw the attention of the Society to a beautiful and luxuriant form of *Asplenium*, bearing a strong resemblance to *A. Trichomanes*. He had obtained several of these beautiful plants growing in a very sheltered and secluded spot near Killarney, surrounded by high rocks. Its peculiar habits of growth, the great length of the raches or stipes, and the luxuriant and rich green of the fronds, struck him as differing very remarkably from the more common forms of *A. Trichomanes*. On referring to Hooker and Greville's beautiful work, 'Icones Filicum,' t. 195, he found it to be identical with the *Asplenium fallax* of the Rev. T. Lowe, named so by him on account of its affinities with *A. Trichomanes*. It was however previously found by Mr. Masson, and placed in the Banksian Herbarium, under the name *Asplenium anceps*, Solander. The Rev. T. Lowe, who has given many interesting details concerning the plants of Madeira and Porto Santo, found this plant at an elevation of 2000 to 3000 feet, and at Ribieiro d'Anatado at an elevation of 4000 feet. It was also found at a low elevation with *Asplenium acutum*. In Madeira it usurps the place of *A. Trichomanes*. Mr. Andrews considered the Kerry plants to be identical with those of *A. anceps* of Madeira, and to bear the same relation to *A. Trichomanes* as *A. acutum* of Madeira does to the ordinary form of *A. Adiantum-nigrum*.

Professor Haughton recognized this form of Fern as one which had been shown to him by a policeman at Killarney, and which at the time struck him as differing in many respects from the ordinary form of *Aspl. Trichomanes*.

Miss Gifford, Minehead, Somerset, requests that her name may be inserted in the list of botanists desirous of exchanging specimens of British plants.

Communications have been received from

D. Stock; J. G. Baker; J. P.; T. Kirk; W. H. Strange; Geo. B. Wollaston; Rev. W. Hind; J. Windsor, F.L.S.; Rev. Thos. Hugo, F.L.S.; Hewett C. Watson, F.L.S.; E. Percival Wright; Isabella Gifford; David Moore, A.L.S.; J. E. Sowerby; H. W.; Dr. Oswald Heer.

All Communications, Books for Review, etc., for the PHYTOLOGIST; should be addressed to the Editor, care of the Publisher, 45, Frith Street, Soho, London, where Advertisements are received until the 22nd of the month.

THREE DAYS AT KILLARNEY.

By the REV. W. M. HIND.

As it is not my purpose to describe the scenery around the far-famed Lakes of Killarney, but simply to mention some of the rarer plants gathered during a very short stay in that interesting neighbourhood, I hope to confine my remarks within a small compass. Suffice it to say that I found myself comfortably lodged at Cotter's Lake Hotel late in the evening of June 24th, 1856. On the following morning I set off for the Torc Waterfall, and searched in vain for *Trichomanes radicans,* though I examined both sides of the cascade to a considerable height. My discoveries here were principally *Saxifraga umbrosa,* Lin., *S. geum,* Lin., *S. stellaris,* Lin., and *Athyrium molle,* Roth. Returning by Mucruss Abbey, which came in for its due share of my attention and admiration, I proceeded to Dinas Island, between the Upper and Middle Lakes. The low meadow-grounds in Mucruss demesne were beautifully dotted with the brilliant spikes of *Orchis latifolia,* Lin. The larger forms had the leaves very handsomely marked or spotted; the smaller were spotless, and of the form *O. incarnata,* Lin. On Dinas Island, and in fact almost everywhere throughout the Lake District, *Osmunda regalis,* Lin., appeared in great profusion. Here also I met with *Salix repens,* Sm., and *S. prostrata,* Sm., *Myrica Gale,* Lin. (everywhere plentiful), *Littorella lacustris,* Lin., and of course Killarney's pride, the *Arbutus Unedo,* Lin. By boat I next proceeded to the Lower Lake, landing first at Lady Kenmare's cottage, and next at O'Sullivan's Cascade, where I gathered *Euphorbia hiberna,* Lin., and *Hymenophyllum Tunbridgense,* Sm.; the latter was very fine and in great quantity. *Lastrea Fœnisecii,* Wats., was also abundant, but not sufficiently advanced to form desirable specimens for the herbarium. Innisfallen I found richer in ecclesiastical remains than in plants, and therefore devoted the time spent on that island to the examination of its churches, and was well repaid; still I could not help seeing *Rubia peregrina,* Lin., *Rosa spinosissima,* etc. Ross Island finds its principal attractions in its fine old castle and the views from its summit. *Antirrhinum majus,* Lin., with other plants, ornament the castle walls.

June 26th.—Crossing the Lower Lake, and landing near the north-west extremity, I made my way across the picturesque Gap of Dunloe. Before leaving the shores of the Lake I was delighted by the appearance of the beautiful *Pinguicula grandiflora*, Lam., of which I gathered about a dozen specimens, but found to my no small mortification in the evening that the splendid blossoms had nearly all fallen. This plant I afterwards found tolerably plentiful in the Gap of Dunloe, where also I gathered *Viola palustris*, Lin., *V. stagnina*, Kit., and *Pedicularis sylvatica*, Lin. (*floribus albis*). Crossing a shoulder of the Purple Mountain, where, with the exception of *Schœnus nigricans*, Lin., and a few plants of no greater rarity, there was not much to arrest the attention, I had the good fortune to meet with, if not a new species of *Drosera*, at least a very marked variety of *D. longifolia*. The plant was growing in a muddy ditch close to the highway and in considerable quantity, and all the specimens having the peculiarity of being *caulescent*. As I did not remark this unusual feature at the time, I only gathered three or four plants; but I am fully convinced that all the plants growing in the locality indicated had the same characteristic feature. The annexed woodcut will sufficiently show the peculiarity: the leaves of the plant wanted the bright straw-colour usual in our native *Droseræ*, and were of a very faint yellowish-green. None of the plants had flower-scapes, unless what I suppose to be an unexpanded leaf prove to be a one-flowered scape.*

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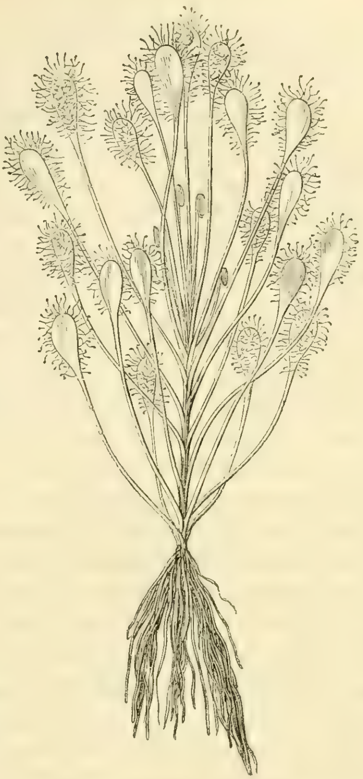
* Since writing the above I have learned, through the kindness of the Editor, that the caulescent form of *Drosera* has been found by other collectors, and among these by Mr. Pamplin in the New Forest. It has however been ignored by all modern writers on British plants since the time of Smith, although it was observed and described by Dr. Hull in the first edition of his 'British Flora,' 1799. It is unnoticed in the third edition of Withering's Botanical Arrangement of 1796, and in Symonds's Synopsis of 1798.

Drosera longifolia (D. intermedia, *Hayne*). "Scapes from the root (curved at the base, passing off horizontally and becoming suddenly erect); leaves ovali-oblong. Capsule oblong.

"Var. 2. Scape branched.

"Var. 3. Caulescent. H. ox. xv. 4. row 1, fig. last but one, only the scape is too straight." (The above hieroglyphical characters or signs are meant to represent 'Morison's Historia Plantarum.') " *Obs.* This is in every respect like var. 1, except that there is a stem, which in some instances is full two inches in length, with numerous leaves. I have always found it growing among *Sphagnum palustre* in moist bogs on heaths, and at first thought that the plant pushed up to a greater height on account of the moss growing quickly around it, and that this appearance of stem was rather to be considered as an elongation of the root; but I have doubted



I may here mention that I have a specimen of *Drosera anglica,* gathered near Urrisbeg, Connemara, in July, 1856, which is very slightly caulescent. The case of a solitary individual, found growing amongst many thousands of the normal form, and slightly varying from that form, is very different from the case where all the individuals in a locality are very considerably and apparently permanently removed from the ordinary state. Whether the plant is a distinct species, or only a variety, must depend on the characters exhibited by the flowers and seed. It is highly probable that plants furnished with these organs may be found in the locality named by any one who will take the trouble to search for them; and I trust that some person fully qualified to settle this point may be so fortunate as to find flowering and fruited specimens of the *Drosera* in question, and communicate the result to the public. I think that I can point out very exactly the spot in which my plants were

of this since I have found a stem leafy, and that the other two species of *Drosera,* though growing exactly in the same situation, and within a few inches of the *longifolia,* do not assume this caulescent form" (Dr. Hull's 'British Flora,' first edition, pp. 67, 68).

If the form should prove to be one of more frequent occurrence than I at first supposed, it will likely reward the search of many collectors; and I also suggest the propriety of collectors examining the specimens which they may have already in their herbarium, in case the form may have been passed over inadvertently. It was not until my specimens were fully dry and ready for labelling that I detected the peculiarity of their form.

found. At Lord Brandon's cottage I and the party who accompanied me were freed from the swarm of peasant girls who had followed us from the Gap of Dunloe, anxious to receive English sixpences in exchange for small draughts of poteen and goat's milk. They were without exception well-looking, civil, and modest, but vastly importunate. From Lord Brandon's cottage I returned by boat down the Upper, Middle, and Lower Lakes, a route which left me free to enjoy the beauties of the surrounding scenery. The only plant sufficiently near to engage my attention was a *Potamogeton*, likely *P. lanceolatus*, Sm.

June 27th.—This day I was chiefly occupied in observing the flowers and shrubs growing near the margin of the Lower Lake. *Dianthus plumarius*, L., was growing in considerable quantity on a rocky promontory in front of the Lake Hotel. This one feels instinctively inclined to put down as an introduction; yet why should not the same feeling exist with respect to *Silene inflata*, which grows side by side with it? *Euonymus europæus* I observed growing on rocks in the lake. *Rosa villosa*, *Antirrhinum majus*, *Galium Witheringii*, *Myosotis versicolor*, and others still more common, I collected on the shores; *Helosciadium inundatum* and other aquatics in ditches running into the lake. I saw also in the hands of a gentleman who had ascended Mangerton mountain, some flowers of the *Pinguicula grandiflora*, and which he called Violets. As I made but few notes of the plants observed during my short stay at Killarney, and for the most part only collected such plants as I had not before, or those of which I wished to have duplicates, I can furnish only a very meagre account of the botanical products of the district through which I passed. *Saxifraga elegans*, *hirsuta*, and *Andrewsii* I was not so fortunate as to notice; and others of less name, but still uncommon, did not come under my observation. Indeed, I believe three weeks, instead of three days, should have been occupied in searching out this district, and, from what I have seen of the neighbourhood, believe that I should have reaped a large harvest in return.

Bayswater, December 17*th*, 1856.

TOUR IN SCOTLAND.

Botanical Tour in the Highlands of Perthshire: Ben Lawers.

From Ben Lawers Inn the easiest route up the mountain is, first, the high-road near the turnpike (toll-bar), and there turn to the left up the peat-road which leads in a direction parallel with the Den of Lawers up the hill. There is a path somewhat shorter than along the high-road, viz. across some fields, passing by two or three straggling cottages on the Killin side of the Den. The Den may be entered near the wood about a mile from Lawers Inn. But walking by the side of the brawling torrent is often difficult, and sometimes dangerous, for the rocks often impinge upon the space between the steep brae and the stream, leaving in some parts but scanty footing for the adventurous pedestrians, in others entirely blocking up the way, and rendering a retrograde movement necessary for those who think "discretion the better part of valour." We dipped into the Den, and traversed a part of it, but finding it both a tedious and toilsome medium of advance we quitted it, and clambering up the steep wooded side, took to the moory, heathy ground on the left, a dreary and desolate scene, but a very suitable approach to the mighty Ben Lawers, an appropriate foreground to the scenery before us, a magnificent propylæum into one of the most august of Nature's temples.

After scouring through this long heath, and leaping over many a peat *hag*, and trusting to many treacherous bogs, which sometimes gave way and spattered us with black, cold, miry sludge, we got a glimpse of the dark waters of Loch-na-Gat, which we soon found to consist of two lakes, the outer one smaller than the inner, and both connected by a short, narrow strait. Round about the head of this lake or lakes stand the majestic heads and peaks, the massive buttresses of Ben Lawers. There flows into the upper end of Loch-na-Gat a rather large stream, which has its source in the north-east side of Ben Lawers: this we crossed, and, leaving the loch behind us, struck straight onwards to Stoich-an-Lochan, an eminence nearer to the Lake than the *real* Ben Lawers, and bearing the reputation of one of "the richest botanical fields in Breadalbane."

In passing over the wide peaty heath we had already collected several rarities, not rare here, but rare to dwellers in the fertile

South, some of them quite new to us freshmen who botanized here for the first time. The more interesting of these were *Rubus Chamæmorus,* not in fruit nor in flower, but just in the transition state, with its calyxes quite empty, the petals, like the last rose of summer, "all faded and gone." A rarer and more interesting species was noticed, not in great quantities nor of a large size, viz. *Cornus suecica,* a plant which reminded us of the hills of Forbes, near the old castle of Kildrummy in Aberdeenshire, where, in 1820, we first observed this charming little object. There the plants were more plentiful and of a larger size than those we picked from the extensive table-lands which skirt the summits of Ben Lawers. Another acquisition was *Gnaphalium supinum,* which grew profusely on bare, turfy, or earthy spots, or on dry places, as stated by the late Wm. Gardiner. *Saxifraga stellaris* did not make its appearance till we had reached at least the altitude of the lake. Solitary individuals of this species were occasionally found near the bases of the mountains, probably washed down by the strong currents which rush violently along the hollows or drains in the upper parts, where it grows; but its home is far above that of the pretty yellow Saxifrage, the *S. aizoides,* which grows at the very bases of the hills and mountains. The latter ornaments the glens. Wherever there is a plashy, springy place, a drain, a ditch, or a mountain rill, there is this pretty plant, its green, shining, fleshy leaves contrasting beautifully with its deep yellow flowers.

Eriophorum vaginatum, E. angustifolium, with its variety *E. gracile, Juncus castaneus,* and some other *Junci,* not yet determined, were collected. *Vaccinium uliginosum,* which we expected to find in these wet moory spots, did not occur; it should have been in fruit when we were there, about the middle of July.

On approaching the steep rocks a little above the base of Stoich-an-Lochan, the lofty eminence nearest to Loch-na-Gat, we were conscious of being in a spot where the vegetation was not only different from what we had hitherto seen, but was as abundant as it was rare and beautiful. *Cerastium alpinum,* in two very dissimilar and apparently distinct forms, covered the green grassy sward with which the stones and rocks, the *débris* of the mountain, are surrounded or partly covered. One of these forms is bushy in its habit, of a hoary aspect, densely invested with a shaggy or woolly covering, rather dwarfish in stature, and bearing on the erect stalks one or two large white flowers. The other forms, except in the magnitude of the flowers, differed but little from *C. triviale,* which also abounds there. The capsules were not far enough advanced to enable us to detect any distinctive character in this organ. The leaves had the same shape and the stems the same erect, slender, and unbranched habit which often characterizes *C. triviale.* The flowers alone obviously distinguished it from that species. About the stones and hollows in the little craggy places which environ the base of this immense almost perpendicular rock, *Polystichum Lonchitis,* *Polypodium Dryopteris,* and *Cystopteris fragilis* abounded. The latter fern appeared in almost every possible variety of form and size, from an inch to above a foot high, from a large, dilated, luxuriant frond to a stunted size, somewhat resembling *Woodsia hyperborea* in substance and outline. Of *P. Lonchitis* there were no very luxuriant specimens at this early period; the longest of them were only about a foot long. Though we have often seen larger fronds, we have never seen them in greater profusion than they are here.

Higher up in the ledges and in the crevices of the lofty rocks, several old acquaintances were recognized. One of the most conspicuous for its foliage, and which gives a character to this savage landscape, is *Sedum Rhodiola,* only some of it in flower, seated often on inaccessible cliffs, and enjoying the dripping moisture which abounds on these crags. The last time we saw this plant, growing wild, was on the Foalfoot of Ingleborough. There the plant had long passed its prime (we saw it in September); here it appeared in all the loveliness of its early bloom.

But the most showy flowers of these cliffy rocks were those of the *Trollius europæus,* a plant which had shed its flowers in most localities of a moderate altitude, and was now in fruit. Here however its yellow blossoms, of extraordinary size and brilliancy of colour, remained to remind us of the great elevation to which we had reached, and the much lower temperature of the atmosphere by which we were surrounded. Humbler situations at the foot of these crags reminded us of the same facts. Here the Wood Anemone, the Wood Sorrel, and the Golden Saxifrage (*Chrysosplenium op.*) were still, at this late period, in full flower, though in a more southern latitude and at a lower elevation the two former had been long decayed. Several plants of a very common character were growing *cheek-by-jowl* with the lofty and rare occupants of these awful precipices, just as is sometimes noticed in every-day life, or on certain occasions, Mr. Snob presumes to 'rub shoulders' with Mr. Swell, and even assumes to be on familiar terms with him.

We observed the *Tussilago* of our clay fields sheltering with her ample leaves the large, pure white blossoms of Our Lady's Cushion (*Saxifraga hypnoides*), and the common Wild Angelica (*A. sylvestris*) shooting up its tall stem, and overhanging the beautiful velvety masses of *Silene acaulis*. The great Cow Parsnip or Hog-weed, the rank and common plant of our meadows and hedges, was associated on these rocks with the elegant silvery foliage of the Alpine Lady's Mantle. We were very much gratified by finding upon these rocky heights *Adoxa moschatellina*, a plant which had hitherto in our reminiscences been associated with the beautiful rural scenes of England. Here it was flourishing in as great perfection as we had ever seen it in the months of March and April under hedges and copses in Surrey and Essex.

But the most charming occupants of these awfully wild cliffs are *Veronica saxatilis* and *Myosotis suaveolens* (*M. alpestris*). The intense and lovely colour of these floral beauties cannot be described. We had seen them in cultivation; but "quantæ mutatæ ab istis!"—"how degenerated!" Some enthusiasts say that it "is well worth a long day's journey to get but a look at the large, brilliant blue," but very delicate flowers, of the Alpine *Veronica*. This season it was pretty plentiful. It does not dry satisfactorily, and consequently makes but a poor object in the herbarium. The *Myosotis* is quite as pleasant to look at. It has also a larger mass of flowers, and is generally more plentiful. Its home is on the mould that scantily covers the tops of the rocks. The *Veronica* creeps along on the slanting sides or on the *débris* which everywhere abounds. The Alpine Mouse-ear (*Myosotis*) dries very well, and would make no contemptible figure in a lady's album.

The tufts of *Silene acaulis*, with its green cushions of matted leaves spread over the face of the rock, and its brilliant pink blossoms, form about as charming an object as can well be imagined. *Saxifraga oppositifolia* hangs in larger festoon-like patches on and over the rocks, but at our visit the flowers were nearly all gone, and the fruit had succeeded. In this state they have lost all their charms. *Saxifraga stellaris* of various sizes, from an inch to six inches high, still abounded at this altitude, and the rarer *S. nivalis* was soon collected. This species has white flowers, but the petals are smaller than in *S. stellaris,* and they are of a slightly different shape. They want the yellow spots at the base, and the plant has larger and more rounded radical leaves. The stem is leafless in *S. nivalis;* in *S. stellaris* this organ is leafy. *Draba incana* also abounded on these rocks, and so did *Arabis hirsuta.* We believe *Draba muralis* grows on the same place. We thought we had captured a specimen of *Arabis petræa,* but on inspection it turned out to be *Cardamine hirsuta,* without hairs and of very slender habit. *C. hirsuta* of the common form and *C. pratensis* were also observed, but the latter not so high up the mountain as the former. One of the showiest species of this Alpine flora was *Cochlearia grœnlandica.* This plant usually affected damp, sheltered places, where it was almost covered by the upper and impending crags. It was often seen in open exposed parts, but not in such luxuriance and beauty as when nestled in these cozy crannies and corners among the surrounding rocks. *Sagina saxatilis,* Wimm., *Spergula saginoides,* Sm., a plant which does not differ much from *S. procumbens,* was not uncommon on the rocky fragments that abound everywhere under and between the impending precipices. *Thalictrum alpinum,* not more than two or three inches high, was plentiful everywhere on the rocks and on their *débris.*

By this time the evening was beginning to draw near; the shadows, when the sun favoured us with a gleam, began to lengthen. This and our own feelings admonished us that it was time to seek a place of repose. We had, in the morning, when we arrived at Lawers, engaged our beds at our inn, and now we made up our minds *to take our ease* at *it* for the night. We descended to the base of the mountain, or rather to the borders of the lake, and went along its margin and along the course of the stream which issues from it until we reached the village of Lawers. The descent even from the upper end of the lake was not accomplished in less than an hour. It may have cost us more time than this. But we got down well, and were thankful.

In the dusk of the evening *Chærophyllum temulentum* and *Carum Carui* were collected in the churchyard of Lawers. The same evening one of us went to the station of *Vicia sylvatica,* which abounds in the lower part of the Den of Lawers, not far from the mill. Specimens were brought for the herbarium rather as a memorial of our visit to Lawers than because the species was not already adequately represented in our collection. *Hymenophyllum Wilsoni* has been gathered below the falls near the station of the beautiful Wood Vetch. This we did not see.

The night was drizzly, and the next morning chilly and uncomfortable; but about seven o'clock the fog cleared away from the summit of the mountain, and we determined *then* to pay it another visit. From what we saw on the afternoon and evening of the 17th we rightly concluded that we had *broken the neck* of our undertaking, or, in other words, we had seen nearly all the plants that we were likely to see in Scotland *this turn;* yet the desire of picking up only the gleanings from so exuberant a field induced us to breast the hill and brave the inclemencies of the atmosphere a second time.

On the morning of the 18th of July, about eight o'clock, we started again from Lawers Inn, and, profiting by yesterday's experience, followed the stream, or walked on the peat-road as far as it went; then followed the stream and the shores of the lake, till we reached the upper end of Loch-na-Gat. We gradually worked our way upwards under the lee-side of the rocks which sheltered us from the driving rain and the high wind, which blew keen and cold from the north-west.

Geum rivale, Geranium pratense, and *G. sylvaticum* reach a high elevation on these rocks, along with several species neither prized for beauty nor rarity. Among these latter *ignobles, Leontodon Taraxacum* was very conspicuous. The *Hieracia* noticed by us were neither numerous nor *recherchés. H. holosericeum* of Backhouse's monograph was secured, and on an inaccessible cliff what was probably *H. cerinthoides* was seen; but neither the specimen which we did secure nor the one seen which we could not reach was in flower, and hence it would require the aid of one better skilled in the diagnostics of the genus than we are to come to a satisfactory decision about them.

Rubus saxatilis was gathered, or rather the root-leaves of the plant; for those we saw had no stems. We were rather surprised at this, for the plant, both in flower and in fruit, abounds about Gordale and Malham, Yorkshire, among the stony *débris* of the limestone rocks. *Alsine Cherleri,* Fenzl, *Cherleria sedoides,* Lin., and *Sibbaldia procumbens* (*Potentilla Sibbaldi*) abounded, —the former in rather extensive patches on the hanging rocks, the latter was widely scattered over the bare, stony parts of the mountain. *Epilobium alpinum* was but sparingly collected on the borders of these alpine rills, and none of the specimens were more than a very few inches high.

Solidago Virgaurea, with lanceolate leaves, abounded; so did the large-flowered prostrate variety of *Veronica serpyllifolia*. *Polygonum viviparum*, *Oxyria reniformis*, and several species of *Juncaceæ*, *Cyperaceæ*, and *Gramineæ* were noticed. We have not yet had time to identify them all, but *Juncus castaneus*, *Luzula spicata*, *Carex atrata*, and *Sesleria cærulea* were among the number. Very high up the mountain a solitary specimen of *Habenaria bifolia* occurred. We did not observe any other Orchid at this elevation. Beyond the ridge, and down a rather steep descent, there is a bog abounding in Cotton-grasses and Sedges. Here plenty of *Salix herbacea*, which we did not observe before, was collected. This minute Willow is not more herbaceous than *S. repens* or any of the minute forms of the genus that abound on our *own* open heaths. There is scarcely any ligneous plant that could ripen wood on any of the summits of the Ben Lawers ridge. All the Willows would become herbaceous at this height, or, what is the same thing, their stems would perish annually, which is the character of a herbaceous plant.

By this time the day was more than half gone, and the highest head of Ben Lawers was still more than half covered with its misty cap. The wind and the rain were gradually increasing as we ascended, and there was no prospect of any abatement of their violence. The state of the weather and other considerations induced us to relinquish the pleasure of threading the rocky passages on and near the summit of the mountain, which pleasure we reserved for another time. We can adopt Wordsworth's beautiful language, full as it is of exquisite poetic feeling and truthful expression, merely changing Yarrow into Ben Lawers:—

> "If care with freezing years *shall* come,
> And wandering seem but folly,
> Should we be loath to stir from home,
> And yet be melancholy,
> Should life be dull and spirits low,
> 'Twill soothe us in our sorrow,
> That earth has something yet to show—
> The bonny holms of Yarrow."

For the bonny holms of Yarrow let "the views from proud Ben Lawers" be substituted. But we believe naturalists are not often troubled with the megrims or vapours. They need not go to Ben Lawers nor to any other remote locality to dissipate their melancholy. Wimbledon Common, Roehampton, and Putney Heaths, even the Isle of Dogs, Woolwich and Plumstead Marshes, have charms for the fraternity. Botanists have excitements of a simple nature, capable of curing any attack of dulness or "spirits low."

It was certainly to be regretted that time did not permit us to remain longer, for the next day was clear and fine too, from end to end; but as arrangements had been made for our returning, return we did, every now and then looking back and regretting that the weather was not so propitious during our stay as it was on our departure. We had however the pleasure of learning, on authority which we have no permission to state, but in which we have the fullest confidence, that this very season *Alsine rubella, Saxifraga cernua, Gentiana nivalis,* and *Dryas octopetala* had all been collected on Ben Lawers, and in flower. From the same authority a more important item of intelligence is derived, viz. that *Veronica fruticulosa* had been rediscovered on Ben Lawers.

This fact, which we hope duly to announce, will render the following extract from the first volume of the 'English Flora,' p. 18, deeply interesting to British botanists:—"*V. fruticulosa,* Lin., etc. On the mountains of Scotland and in wet places. Gathered on Ben Cruachan, in Argyleshire, by the Rev. Dr. Walker, from whose original plant, cultivated in his garden, I have specimens. Mr. R. Brown, whose accuracy is also beyond all doubt or 'supposition,' told me he found this plant on Ben Lawers. I trust no further confirmation is necessary to establish it a native."

Most of us are aware of the generally prevalent presumption that *Hierochloe borealis* had never really been found wild in Scotland; yet this plant was, only about a couple of years ago, rediscovered at a great distance from its first announced Scottish locality. The particulars of this more recent rediscovery of a Scottish native is expected with some impatience.

IRISH MOSSES.

Observations on the Mosses of Ireland, with a Supplementary List of Species not contained in the 'Flora Hibernica,' together with their Habitats. By D. Moore, Esq., M.R.I.A., etc. etc.

Those who have paid much attention to the geographical distribution of plants in this country must have observed that the species and individuals, both Phænogamic and Cryptogamic, or, in other words, vascular and cellular plants, decrease in number progressively from the east side of the island to the west. For instance, a greater number of species are generally found in the counties of Antrim, on the north-east, and Dublin, on the east side, than there are in Sligo, on the north-west, and Galway, on the west side. The cause of this discrepancy is hardly reconcilable to differences in their geological formations, which no doubt affect the growth of plants very materially; neither are the causes assignable to elevation and undulation of the surface, both being pretty much the same in the counties I have instanced; I would rather therefore consider them to be more of a meteorological nature; the west coast being so sensibly affected by the Gulf stream—an equable and moderately high temperature, accompanied with a more than ordinary degree of moisture, are nearly constant throughout the season—circumstances which do not prevail to the same degree in other parts of the island. Accordingly, among the plants in these localities large quantities of a few rare species grow, which are not found elsewhere in the United Kingdom: as examples, I may instance the two Heaths, *Erica mediterranea*, var. *hibernica*, and *E. Mackaiana*, along with several Saxifrages; and, as Cryptogamic species, the well-known Killarney Fern *Trichomanes radicans*, and *Jungermannia Woodsii.*

Some species of Mosses are very local, and confined to certain districts, while others are only known to grow on particular kinds of rocks. Among the latter is one of our rarest and minutest species, namely *Weissia pusilla*, which has only, I believe, been observed to grow on limestone. It occurs in considerable abundance in several places near Belfast, but I never saw it elsewhere in Ireland. Again, with respect to those that are local, I never found the pretty little Moss *Glyphomitrion Daviesii*, excepting on the basaltic rocks in the neighbourhood of the Giant's Causeway, where it is plentiful. *Hypnum moniliforme* seems to inhabit only one district in Connemara, where it grows on almost every large rock, though never yet found in fruit there. *Distichum inclinatum* and *Diphyscium foliosum* appear to be confined to the west and north-west counties.

Species which are not in 'Flora Hibernica,' but are noticed in 'Bryologia Britannica' as Irish.

ORDER—BRYACEÆ

Section I.—ACROCARPI.

Dicranodontium longirostre, Br. and Sch. Habitat, Cromagloun Wood, near Killarney. Found by Dr. Taylor, 1841.

Campylopus densus, Sch. Habitat, near Bantry. Found by Miss Hutchins, 1808. Howth, Mr. Orr, 1856.

Campylopus setifolius, Wilson. Habitat, near Dunkerron. Dr. Taylor.

Campylopus longipilus, Br. Habitat, Howth, Lough Bray, etc.

Didymodon recurvifolius, Taylor. Habitat, near Kenmare. Found by Dr. Taylor, 1842.

Didymodon luridus, Hornschuch. Habitat, near Cork. W. Wilson, Esq., 1829.

Tortula ambigua, Br. and Sch. Habitat, on the tops of mud walls near Dublin; very common during March and April. D. M.

Tortula oblongifolia, Hook. and Wilson. Habitat, near Dublin. Mr. Drummond, 1829. This was the only habitat known for this rare species in the British Islands up to the present year, 1856, when it was rediscovered by Mr. David Orr, near Bray, where I have since seen it growing in considerable quantities.

Encalypta ciliata, Hedwig. Habitat, Benbradagh Mountain, near Dungiven, Co. Derry, where I found it plentifully in 1835.

Species which are not noticed in 'Bryologia Britannica,' nor in 'Flora Hibernica,' as Irish.

ORDER—BRYACEÆ.

Section I.—ACROCARPI.

Phascum bryoides, Dickson. Habitat, Howth, very sparingly, growing on a wall-top with *Pottia crinita*. Mr. D. Orr. I have since seen it there.

Dicranum fuscescens, Turner. Habitat, near Luggelaw, Co. Wicklow. Collected in 1852 by Mr. Orr and myself.

Dicranum majus, Turner. Habitat, Lough Bray and Killarney.

**Pottia crinita*, Wilson. Habitat, Howth, in one spot only, whence Mr. Orr brought it to me last March, and where I collected it since.

Rhabdoweissia denticulata, Br. and Sch. Habitat, Slemish Mountain, Co. Derry. This species is probably included in Dr. Taylor's list, under the name of *Weissia striata*, along with *Rhabdoweissia fugax*, Br. and Sch.

**Trichostomum flexicaule*, Br. and Sch. Habitat, Portmarnock Sands, where it grows plentifully, but always barren.

Tortula aloides, Br. and Sch. Habitat, clay fields, near Dublin, frequent. This moss, and also *Tortula ambigua*, Br. and Sch., are no doubt mixed up with *Tortula rigida*, Schultz, by Dr. Taylor in 'Fl. Hib.,' though very distinct species from it.

Tortula latifolia, Br. and Sch. Habitat, on trees, about Glasnevin. First observed by Mr. D. Orr, 1856.

**Tortula lævipila*, Brid. Habitat, on trees, near Dublin.

Hedwigidium imberbe, Br. and Sch. Habitat, near Glengariff. Miss Hutchins.

Grimmia leucophæa, Greville. Habitat, on basaltic rocks on the Antrim coast, where it has been collected by myself, and also by Mr. Orr.

Grimmia patens, Br. and Sch. Habitat, Slemish Mountain, near Ballymena, Co. Derry, where I collected it in 1836, and sent specimens to the late Dr. Taylor.

Orthotrichum pumilum, Dickson. Habitat, near Kilcock, on trees. Mr. R. Brown, 1852.

Orthotrichum Ludwigii, Sch. Habitat, Ireland. 'Bryol. Brit.'

Orthotrichum Drummondii, Hook. and Grev. Habitat, Torc Mountain, Killarney. 'Bryol. Brit.'

Orthotrichum tenellum, Bruch. Habitat, near Bantry. Miss Hutchins, 1815. In a wood about a mile west of Galway, where I collected it sparingly, 1854.

Bryum pallescens, Sch. Habitat, near Clonmel. Mr. Sidebothom.

Bryum Tozerii, Greville. Habitat, near Cork, by the side of the river Lee, where I collected it in 1842, and where it has since been found by Mr. Isaac Carroll, of Cork.

Bartramidula Wilsoni, Br. and Sch. Habitat, Connor Hill, near Dingle. W. Wilson, Esq., 1829.

Bartramia rigida, Bals. et Notaris. Habitat, near Killarney. Dr. Taylor.

Fissidens exilis, Hedwig. Habitat, Botanic Garden, Glasnevin.

Fissidens osmundioides, Hedwig. Habitat, Benbulben, Co. Sligo, very large and fine, 1854.

Fissidens asplenioides, var. *β,* Swartz. Habitat, near Glengariff. W. Wilson, Esq.

Fissidens tamarindifolius, Turner. Habitat, Cullenswood, near Dublin. Dr. Whitley Stokes.

Tortula papillosa, Wilson. Habitat, on trees, near Dublin. First observed by Mr. D. Orr, 1856.

Racomitrium pratense, Braun. Habitat, Lough Bray, Co. Wicklow, where I observed it in 1845.

Orthotrichum rupestre, Sch. Habitat, on rocks near the Giant's Causeway, where I first found it in 1837, and sent it to the late Dr. Taylor.

**Orthotrichum Bruchii*, Br. Habitat, on rocks near Clonmel. 1856.

Orthotrichum phyllanthum, Br. and Sch. Habitat, on trees near Johnstown, Co. Wexford. Mr. Lawson, of Edinburgh, who is now engaged on a work on Mosses, wrote to me that he had received this Moss from the above habitat in 1856.

**Zygodon Mougeotii*, Br. and Sch. Habitat, in the crevices of moist rocks, many parts of Ireland; very fine at Galtymore, 1855.

**Leptobryum pyriforme*, 'Bryol. Europ.' Habitat, on a moist bank by the side of the river Bann, about two miles above Drogheda, 1850. This Moss abounds on the surfaces of pots in our greenhouses, though so rare in a truly wild state.

**Bryum pseudotriquetrum*, Schw. Hab., Co. Antrim, in bogs, Mr. D. Orr, 1836.

**Bryum uliginosum*, Br. and Sch. Habitat, wet banks, Glendaugh, Co. Dublin. Mr. D. Orr, 1852.

Bryum sanguineum, Bridel. Habitat, moist banks, Kelly's Glen and Glendaugh. 1846.

Bryum atropurpureum, Weber and Mohr. Habitat, on walls and heathy places near Dublin.

The two last species are included in Turner's 'Musci Hibernici,' under the names of *Bryum bicolor* and *Bryum lacustre*, according to Mr. Wilson, in 'Bryologia Britannica.'

Bryum torquescens, Br. and Sch. Habitat, Killarney, and near Dublin. 1856.

Section II.—PLEUROCARPI.

Anœctangium Hornschuchianum, Hoppe. Habitat, Killarney, where it was first discovered by the late Dr. Taylor, and now observed to be rather common there.

Hypnum Teesdalii, Smith. Habitat, near Bantry. Miss Hutchins.

Hypnum pumilum, Wilson. Habitat, on trees, Botanic Garden, Glasnevin.

Hypnum striatulum, Spruce. Habitat, Killarney. W. Wilson, 1829; and Mr. D. Orr, 1855.

Hypnum polygamum, 'Bryol. Europ.' Habitat, Portmarnock Sands, where I observed it in 1844.

Hypnum elegans, Hooker. Habitat, near Bantry, Miss Hutchins.

Hypnum ochraceum, Turner. Habitat, near Bantry, Miss Hutchins. Ballycheulish, D. Turner, Esq., 1807; and plentiful in Kelly's Glen, Co. Dublin. By myself, 1839.

Neckera pennata, Hall. Habitat, on trees, Collon Glen, near Belfast. Mr. D. Orr.

Section II.—PLEUROCARPI.

Leskea Spruceii, Bruch. Habitat, Portmarnock Sands, on wet spots, 1855.

Leskea rufescens, Hall. Habitat, on limestone rocks, Benbulben. First discovered by Professor Dickie, of Belfast, and since gathered by myself in same locality plentifully.

Leskea subrufa, Wilson. Habitat, on limestone rocks, Benbulben, where I found it sparingly in fruit, in July, 1844. Mr. Orr finds it at Killarney.

Hypnum illecebrum, Lin. Habitat, on Howth. Mr. D. Orr.

**Hypnum rivulare*, Bruch. Habitat, Kelly's Glen, Co. Dublin, 1850.

**Hypnum chrysophyllum*, Bridel. Habitat, Portmarnock, and near Galway, 1843.

Hypnum lycopodioides, Necker. Habitat, Howth, and other places near Dublin.

Hypnum crista-castrensis, Lin. Habitat, Collon Glen, near Belfast. Mr. D. Orr, 1847.

NOTE.—After the foregoing was written, Mr. Isaac Carroll, of Cork, called my attention to a Supplementary List of Irish Mosses, published by him in the February number of the 'Phytologist' for 1856; I have therefore marked the species which are in his List, and not in 'Bryologia Britannica,' with an asterisk.—D. M.

ADDENDA.

Orthotrichum phyllanthum grows in great abundance on trees, in Sir Charles Coote's demesne at Ballyfin, Queen's County, where I collected it in June, 1856.

Orthotrichum crispulum, Hornsch. Habitat, on trees at Ballyfin, along with the former, June, 1856.

—*Extract from Journal of Royal Dublin Society.*

COMMON PLANTS.

By the Rev. HUGH A. STOWELL.

Most of the plants which have a very wide range throughout Great Britain may, *in a certain sense*, be called 'common.'

A very cursory inspection, however, of a list comprising all those plants which have been ascertained to grow in fifteen or more of the eighteen provinces into which Great Britain has been divided for botanico-statistical purposes in the 'Cyb. Brit.,' will at once convince any one that such a standard of commonness is a very unsatisfactory one. He will find species varying immensely in actual abundance classed indiscriminately together, undoubted rarities side by side with daisies, buttercups, and nettles.

For the purpose, then, of ascertaining more satisfactorily what species would probably be voted 'common' by a majority of individual botanists, classifying according to their own experience, let us suppose our island divided into districts of such size as may be readily traversed and explored by a local botanist,—say eight miles square,—we shall not then, I think, find much difficulty in separating all our Flora into *four* great classes. Class A will comprise those plants which probably occur in at least 99 per cent. of such districts. These may be called Universal Species. Class B will consist of plants likely to be found in *at least* 75 per cent. of such districts. These may be called Common Species. Class C will embrace plants which may be expected to occur in 50 per cent. or somewhat more of such districts. These we may term Frequent Species. To Class D the remainder of our Flora will belong, consisting of all such plants as may be supposed to grow in a decided minority, greater or less, of such districts, and which therefore are justly entitled to the appellation of the Uncommon Species.

Now it seems to me that the plants which may be comprised in Classes A and B are the only ones which can with justice and propriety be called *Common Plants;* and in this opinion I think that I shall be supported by a decided majority of my brother-botanists. The occupants of Class C are but at best entitled to the denomination of *Neutrals.*

But it may fairly be asked,—This is all very well, but *is* this system of classification so easy as you fancy? That, I grant, remains to be proved. Let us however put it to the test, and see how far the following attempt will prove satisfactory.

Class A.—*Universal Species* (145).

Ranunculus aquatilis.
Ranunculus Ficaria.
Ranunculus Flammula.
Ranunculus acris.
Ranunculus repens.
Caltha palustris.

Fumaria officinalis.
Capsella Bursa-pastoris.
Cardamine pratensis.
Cardamine hirsuta.
Nasturtium officinale.
Sisymbrium officinale.
Sinapis arvensis.
Viola canina.
Lychnis diurna.
Lychnis Flos-cuculi?
Sagina procumbens.
Stellaria media.
Stellaria Holostea?
Stellaria graminea.
Cerastium triviale.
Cerastium glomeratum.
Geranium Robertianum.
Oxalis Acetosella.
Ulex europæus.
Trifolium repens.
Trifolium pratense.
Trifolium procumbens.
Lotus corniculatus.
Vicia sativa?
Vicia sepium.
Lathyrus pratensis.
Prunus spinosa.
Spiræa Ulmaria.
Geum urbanum.
Potentilla anserina.
Potentilla Tormentilla.
Fragaria vesca.
Rosa canina.
Cratægus Oxyacantha.
Epilobium montanum.
Epilobium parviflorum.
Callitriche verna.
Hedera Helix.
Heraclium Sphondylium.
Anthriscus sylvestris.
Daucus Carota.
Lonicera Periclymenum.
Galium palustre.
Galium saxatile.
Galium Aparine.
Apargia autumnalis.
Sonchus oleraceus.
Crepis virens?
Hieracium Pilosella.
Lapsana communis.
Taraxacum officinale.
Arctium Lappa.
Carduus palustris.
Carduus lanceolatus.
Carduus arvensis.
Centaurea nigra.
Filago germanica?
Senecio vulgaris.
Senecio Jacobæa.
Bellis perennis.
Chrysanthemum leucanth.
Pyrethrum inodorum.
Achillea Millefolium.
Calluna vulgaris.
Fraxinus excelsior.
Veronica arvensis.
Veronica serpyllifolia.
Veronica Beccabunga?
Veronica officinalis?
Veronica Chamædrys?
Veronica hederæfolia.
Veronica agrestis.
Euphrasia officinalis.
Rhinanthus Crista-Galli.
Thymus Serpyllum.
Ajuga reptans.
Lamium purpureum.
Stachys sylvatica?
Prunella vulgaris.
Myosotis arvensis.
Myosotis cæspitosa.
Primula vulgaris.
Plantago major.
Plantago lanceolata.
Chenopodium album.
Atriplex hastata.
Atriplex angustifolia.
Polygonum Persicaria.
Polygonum Hydropiper?
Polygonum aviculare.
Polygonum Convolvulus.
Rumex crispus.
Rumex obtusifolius.
Rumex Acetosa.
Rumex Acetosella.
Euphorbia Helioscopia.
Urtica urens.
Urtica dioica.
Corylus Avellana.
Betula alba.
Populus nigra.
Orchis maculata.
Iris Pseudacorus?
Hyacinthus non-scriptus.
Potamogeton natans.
Lemna minor.
Juncus effusus.
Juncus conglomeratus.
Juncus acutiflorus.
Luzula campestris.
Scirpus cæspitosus.
Phalaris arundinacea.
Anthoxanthum odoratum.
Phleum pratense.
Alopecurus pratensis.
Agrostis vulgaris.
Agrostis alba.
Phragmites vulgaris.
Aira cæspitosa.
Aira flexuosa.
Holcus lanatus.
Holcus mollis.
Glyceria fluitans.
Poa annua.
Poa pratensis.
Poa trivialis.
Cynosurus cristatus.
Dactylis glomerata.
Festuca ovina.
Festuca pratensis.
Bromus mollis.
Triticum repens.
Lolium perenne?
Polypodium vulgare.
Lastrea Filix-mas.
Pteris aquilina.
Equisetum arvense.
Equisetum palustre.
Equisetum limosum?

Class B.—*Common Species* (174).

? Anemone nemorosa.
? Ranunculus hederaceus.
Ranunculus bulbosus.
Ranunculus sceleratus.
? Papaver dubium.
Papaver Rhœas.
? Draba verna.
Arabis Thaliana.
Barbarea vulgaris.
Alliaria officinalis.
Raphanus Raphanistrum.
? Viola tricolor.
Polygala vulgaris.
Lychnis vespertina.
Lychnis Githago.
? Spergula arvensis.
? Arenaria serpyllifolia.
? Cerastium semidecandrum.
? Linum catharticum.
Malva sylvestris.
? Geranium molle.
Geranium dissectum.
Hypericum perforatum.
Hypericum quadrangulum.
Hypericum pulchrum.
Spartium scoparium.
? Ononis arvensis.
Medicago lupulina.
Trifolium medium.
Trifolium filiforme.
Trifolium arvense ?
Vicia Cracca.
? Vicia hirsuta.
Agrimonia Eupatoria.
Potentilla reptans.
Potentilla Fragariastrum.
? Pyrus Aucuparia.
Epilobium palustre.
Epilobium tetragonum.
Circæa lutetiana.
Myriophyllum spicatum.
Scleranthus annuus.
? Sedum acre.
Chrysosplenium oppositi.
Hydrocotyle vulgaris.
? Conium maculatum.
Æthusa Cynapium.
? Bunium flexuosum.
Angelica sylvestris.
Scandix Pecten.
Chærophyll. temulentum.
? Sambucus nigra.
Galium verum.
Sherardia arvensis.
Fedia olitoria.
Scabiosa succisa.
Knautia arvensis ?
Hypochæris radicata.
? Sonchus arvensis.
? Sonchus asper.
Hieracium murorum.
Hieracium vulgatum.
Centaurea Cyanus.
? Artemisia vulgaris.
Gnaphalium uliginosum.
Filago minima.
Tussilago Farfara.
? Solidago Virgaurea.
Senecio sylvaticus.
Senecio aquaticus.
Chrysanthemum segetum.
Achillea Ptarmica ?
? Campanula rotundifolia.
Erica cinerea.
Erica Tetralix.
? Ilex Aquifolium.
? Erythræa Centaurium.
Convolvulus arvensis ?
Convolvulus sepium ?
Solanum Dulcamara.
Veronica Anagallis.
Bartsia Odontites.
Melampyrum pratense.
Pedicularis sylvatica.
Scrophularia nodosa.
Linaria vulgaris.
? Mentha aquatica.
? Mentha arvensis.
? Teucrium Scorodonia.
Lamium album.
Lamium amplexicaule.
Lamium incisum.
Galeopsis Tetrahit.
Stachys palustris.
? Nepeta Glechoma.
Myosotis palustris.
Myosotis versicolor.
Myosotis collina.
Lycopsis arvensis.
? Anagallis arvensis.
Atriplex patula.
Atriplex Babingtonii.
Polygonum amphibium ?
Rumex conglomeratus.
? Euphorbia Peplus.
? Mercurialis perennis.
Parietaria officinalis.
? Ulmus montana.
? Quercus Robur.
Alnus glutinosa.
? Populus tremula.
? Salix cinerea.
Salix viminalis.
Salix aurita.
Salix alba.
Salix Caprea.
Juniperus communis.
Listera ovata.
Orchis mascula.
Orchis latifolia ?
Alisma Plantago.
? Triglochin palustre.
Potamogeton crispus.
Potamogeton perfoliatus.
Potamogeton lucens ?
Arum maculatum.
Sparganium ramosum.
Juncus bufonius ?
Juncus squarrosus.
Juncus lamprocarpus.
Juncus supinus.
Luzula pilosa.
? Luzula multiflora.
Scirpus palustris.
Scirpus lacustris.
? Eriophorum angustifol.
Carex pulicaris.
Carex stellulata.

Carex vulpina ?
Carex paniculata.
Carex pallescens.
Carex glauca.
? Carex panicea.
? Carex vulgaris.
Carex flava.
Carex præcox.
Carex binervis ?
Carex pilulifera.
? Carex paludosa.
? Alopecurus geniculatus.
Agrostis canina.
? Aira caryophyllea.
? Arrhenath. avenaceum.
Triodia decumbens.
Catabrosa aquatica.
Glyceria rigida ?
Poa nemoralis ?
? Briza media.
? Festuca duriuscula.
Bromus asper.
Bromus sterilis.
Avena pratensis.
Triticum caninum.
Nardus stricta.
Aspidium aculeatum ?
Aspidium lobatum ?
Lastrea Oreopteris ?
Lastrea dilatata ?
Athyrium Filix-fœmina ?
Asplenium Trichomanes.
Asplenium Ruta-muraria.
Asplenium Ad.-nigrum.
Scolopendrium vulgare.
Blechnum boreale.

Class C.—*Frequent Species* (172).

Thalictrum minus ?
Ranunculus auricomus.
Ranunculus circinatus ?
Ranunculus hirsutus ?
Nymphæa alba.
Nuphar lutea.
Papaver Argemone.
? Fumaria capreolata.
Coronopus Ruellii.
Lepidium Smithii ?
Lepidium campestre.
Arabis hirsuta.
Nasturtium terrestre.
Sisymbrium Sophia ?
? Brassica Napus.
Brassica Rapa.
Sinapis nigra.
Reseda Luteola.
? Helianthemum vulgare.
Viola odorata.
? Drosera rotundifolia.
? Silene inflata.
Sagina apetala.
Sagina nodosa.
? Spergularia rubra.
Arenaria trinervis.
Stellaria uliginosa.
Radiola Millegrana.
Malva moschata.
Hypericum humifusum.
Hypericum hirsutum.
? Erodium cicutarium.
Geranium lucidum ?
Genista anglica.
Anthyllis Vulneraria.
Trifolium minus.
Lotus major.
Ornithopus perpusillus.
Orobus tuberosus.
Prunus avium.
Geum rivale ?
Comarum palustre ?
Rubus Idæus.
? Alchemilla arvensis.
Poterium Sanguisorba.
Pyrus Malus.
Epilobium hirsutum.
Myriophyllum alternifl.
Callitriche platycarpa.
Lythrum Salicaria.
Peplis Portula.
Montia fontana.
Sempervivum tectorum.
Saxifraga tridactylites.
Adoxa moschatellina.
? Sanicula europæa.
Helosciadium nodiflorum.
Helosciadium inundatum.
Sium angustifolium.
Ægopodium Podagraria.
? Pimpinella Saxifraga.
Œnanthe fistulosa.
? Œnanthe crocata.
Torilis Anthriscus.
Torilis infesta.
Anthriscus vulgaris.
Viburnum Opulus.
Galium cruciatum ?
Galium uliginosum.
Galium Mollugo ?
? Asperula odorata.
Valeriana officinalis.
Dipsacus sylvestris.
Tragopogon pratensis.
Apargia hispida.
Hieracium boreale.
Hieracium umbellatum.
Arctium Bardana.
Carduus acanthoides.
Carlina vulgaris.
Centaurea Scabiosa.
Bidens cernua.
Eupatorium cannabinum.
Tanacetum vulgare.
Gnaphalium sylvaticum.
Petasites vulgaris.
Pulicaria dysenterica.
Pyrethrum Parthenium.
Anthemis Cotula.
Jasione montana.
? Vaccinium Myrtillus.
Menyanthes trifoliata.
Hyoscyamus niger.
Verbascum Thapsus.
Veronica scutellata.
Veronica montana ?
Veronica polita.
Pedicularis palustris.
Digitalis purpurea.
Lycopus europæus.
Mentha sativa.
Origanum vulgare.

Calamintha Clinopodium ?
Galeopsis Ladanum.
Stachys Betonica.
Stachys arvensis.
Scutellaria galericulata.
Lithospermum arvense.
Symphytum officinale.
Echium vulgare.
Pinguicula vulgaris.
Utricularia vulgaris.
Primula veris.
? Lysimachia nemorum.
? Anagallis tenella.
Plantago media.
Plantago Coronopus.
Chenopodium Bonus-Hen.
Atriplex deltoidea.
? Polygonum lapathifol.
Rumex sanguineus.
Rumex Hydrolapathum.
Salix fragilis.
Salix purpurea.
Salix Smithiana.
? Salix fusca.
Myrica Gale.
Taxus baccata.
Gymnadenia Conopsea.
Habenaria bifolia.
Orchis Morio ?
Allium ursinum.
Alisma ranunculoides ?
Potamogeton pectinatus.
Potamogeton pusillus ?
Potamogeton rufescens.
Potamogeton densus.
Lemna trisulca.
Sparganium simplex.
Typha latifolia.
Juncus glaucus.
Juncus obtusiflorus ?
Juncus compressus ?
Luzula sylvatica.
Narthecium ossifragum.
Schœnus nigricans ?
Scirpus setaceus.
Scirpus acicularis.
Scirpus fluitans.
Eriophorum vaginatum.
? Carex ovalis.
Carex curta.
? Carex remota.
Carex muricata.
Carex acuta.
? Carex fulva.
Carex distans.
? Carex sylvatica.
Carex hirta.
? Carex ampullacea.
Carex riparia.
Milium effusum.
? Aira præcox.
Avena pubescens.
Melica uniflora.
Molinia cærulea.
Poa compressa.
Festuca bromoides.
Festuca loliacea.
Bromus commutatus.
Brachypodium sylvaticum.
Lycopodium clavatum.

Class D.—*Uncommon Species* (about 1000).

Note.—? *prefixed* to a species, intimates a doubt whether it ought not to belong to the previous Class. The same mark *affixed*, a query whether it is not rather to be referred to the following Class.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Development of Heat in the Spadix of Arum maculatum.

A phenomenon in the properties of the plant was observed by my little son and myself, in the month of May last, which may not be uninteresting to some of your readers, and was quite unknown to me until I tried the following experiment:—As my son, a boy of eight years old, was the discoverer, I shall give its history in his own words. He picked the plant in full bloom, in a boggy part of Pett's Wood in this parish, and ran up to me saying, "Oh, Pappy, this thing in the middle is quite *hot*," and I, supposing it to be caused by the concentrated rays of the sun from the concavity of the spathe, thought no more about it for some time; but finding that the warmth continued the whole of that and part of the next day, I tested it by applying both the spadix and the spathe to the bulb of a good thermometer, and found that the clubby portion of the spadix was 71° Fahrenheit, whilst the spathe only 57½°, making a difference of 13½° of temperature. I then inverted the experiment, with partially the same result, the plant having lost part of its vitality. Plants picked at other times from the same locality exhibited the same properties.

Chiselhurst, December 6, 1856. G. B. WOLLASTON.

ON REMOVING ORCHISES.

"H. B." in 'Phytologist,' No. 20, New Series, page 520, says, "I am persuaded the best time to remove Orchises . . . is after they have *done flowering*, and when the roots are preparing, or rather are ready prepared, for the next year." As I have had considerable experience in the cultivation of Orchises for many years, perhaps I may be allowed to express an opinion, that when the *roots* are prepared for next year is *not* the best time for their removal, as is obvious for the following reasons:—The tips or spongioles of the roots are exceedingly fragile, and even with the greatest care are either cut through by the trowel in the act of removal, or broken off after they have been dug up, by their own weight, against the sides of the vasculum, etc. The roots (and not the bulbs or tubers) are the portions of the plant by which its inflorescence is developed or supported, as may be easily proved by taking two roots of the same Orchis just showing their flowering spikes. Remove the tubers alone from one, and the roots or even the tips of the roots from the other; the former will flourish as if nothing had been done, and the other will dwindle away. Therefore I infer that the best time to remove Orchises is when they are in full bloom, or, in other words, before they have made any *roots* for the next year. The various genera will require slight modifications of this rule, which experience alone can teach. G. B. WOLLASTON.

SAXIFRAGA TRIDACTYLITES, ETC.

Extract of a Letter from the Rev. H. A. STOWELL.

"The following observation may be of some interest to you. In p. 397 you believe that *Saxifraga tridactylites* is confined to walls and roofs in England: again, p. 398, it is classed amongst plants never seen except on artificial erections, etc. If you will come here next March, I will show it to you, all well, growing in profusion on a 'sunny declivity,'—a gravel bank at least three-quarters of a mile from any artificial erection, except a few posts, rails, and gates, in company with *Draba verna* and *Myosotis collina*.

"*Verbena* also grows by pathsides in the woods between Badging Downs and Belmont, *more* than half a mile from any house (see p. 416).

"We have had some interesting information in the pages of the 'Phytologist' on the peculiarities of the Glastonbury Thorn; but I think no one has alluded to a similar idiosyncrasy on the part of the Oak. And yet I suppose every one has heard of the famous Cadenham Oak of the New Forest, which puts on a bright green robe each year in honour of the great Christmas festival, and lays it aside again with the new year till Holy Thursday comes round. This freak on the part of a true British Oak is surely more unaccountable than that Joseph of Arimathea's Thorn should still, after the lapse of eighteen centuries, forget its altered circumstances and retain the old instincts and habits of its dear sunny fatherland.

"Surely the name 'Live-long,' applied to *Sedum Telephium* (p. 457), rather denotes its own wonderful vitality than any supposed efficacy as a human life-perserver. I find that no ordinary pressure will destroy this vitality. Last year I selected one of several specimens, which had put forth vigorous though of course blanched shoots during a fortnight's close imprisonment between tightly strapped boards, and planted it, when, to my amazement, it at once took root, and still flourishes in its native haunts. May it 'Live long'!

"*Cuscuta Trifolii* and *Veronica Buxbaumii* are spreading fast in our clover and turnip fields. *Draba inflata* (Hooker) was plentiful this spring on a gravel bank by the roadside through Bysing wood.

"I suppose that *Vicia sepium* was omitted by oversight from the List of 'Common Plants.' Is it not decidedly *the* commonest of our Vetches?"

VERONICA PEREGRINA.

In July last I spent a few weeks in the neighbourhood of Belfast, county Antrim, and had the good fortune to find a species of *Veronica* fully established as a weed of the soil, and seemingly as much at home as any of its congeners. Through the kindness of Dr. Hooker and Mr. Babington I have had the species identified as *V. peregrina*, L., an undoubted foreigner. Don describes *V. peregrina* as having *subserrated* leaves, in my specimens they are *perfectly entire*. They were gathered in the fruit-garden of The Lodge, Belfast, and, though not confined to one spot, were principally found growing amongst Parsley. Were Parsley-seed brought from abroad this would at once afford a clue to the manner of its introduction; but being of home production we must be content take the fact as we find it, and return the verdict *not proven* in reference to the way in which this stranger has made his appearance. Collectors can have specimens in exchange on application. W. M. HIND.

Bayswater, January 13.

ÆGILOPS CHANGED INTO WHEAT.

"There is nothing more improbable in this (the specific identity of Almond-trees, Peach-trees, etc.), than that we know must have occurred in the production of Cauliflowers from the Wild Cabbage of our English coasts, or of Muscat Grapes from the small-fruited Wild Vine of Baidar, or of Wheat from *Ægilops*, which last case, we presume, may now be regarded as beyond reasonable contradiction."—*Gard. Chron. August* 9, 1856, p. 532.

May it not be inferred that the two former facts are not "beyond reasonable contradiction"? We wish our readers would give us the result of their serious considerations on these *facts*—facts assumed by high authority; but facts should be supported by *evidence* rather than by *authority.*

EPIPOGIUM APHYLLUM. *By* D. STOCK.

Epipogium is the most curious discovery that has ever been made among the wild plants of this country. It is a leafless pallid Orchid, related to the common *Neottia Nidus-avis.* Germany, Switzerland, Siberia had alone been previously known to produce it. Modern researches have however shown that it has a far wider range: perhaps reaching even as far as Hindostan.

P.S. The enclosed cutting is from the 'Gardeners' Chronicle' of the 8th Nov. Is it known, generally, that such a discovery has been made? If not, a notice of it in your 'Phytologist' would be acceptable and interesting.

Is *Campanula hederacea* frequent about London? I found quite a bed of it this year in Epping Forest, and regret that I did not bring away a larger number of specimens.

NOTE *on the above Communication.*

This discovery was noticed in our Journal for 1855, p. 48, and again in p. 118. If any reader of the 'Phytologist' will draw up a history of the discovery and a description of the plant, such will be thankfully received.

CAMPANULA HEDERACEA is not *plentiful* about London; but its locality in Epping Forest, in a bog near the High Beeches, between Epping and Loughton, has long been known. The writer of this note has not observed it, nor ever heard of its being observed, in any other part of Epping Forest.

The Rev. W. M. Hind, Hereford Road North, Bayswater, W., has specimens of the following plants to offer in exchange:—*Hutchinsia petræa*, *Eranthis hyemalis*, *Hippocrepis comosa*, *Geranium sanguineum*, *Pyrus Aria*, *Peplis Portula*, *Saxifraga hirta*, *S. hypnoides*, *Asperula cynanchica*, *Gnaphalium dioicum*, *Erigeron acris*, *Lobelia Dortmanna*, *Menziesia polifolia*, *Pyrola media*, *Euphrasia gracilis*, *Orobanche rubra*, *Lathræa Squamaria*, *Pinguicula lusitanica*, *Eriocaulon septangulare*, *Rhyncospora fusca*, and *Veronica peregrina*.

Communications have been received from

William Cheshire; Rev. W. M. Hind; C. A. C.; Rev. H. A. Stowell; Archibald Jerdon; George Hunt; Isaac Carroll; Miss A. C. Payne; Thomas Moore, F.L.S.; Thomas How.

BOOKS RECEIVED FOR REVIEW.

The Phytologist, a Botanical Journal; being the concluding Number of Volume the Fifth.

The Natural History Review; January, 1857.

ERRATA IN THE JANUARY NUMBER.

Read 'Gamsbrows' *for* 'Gainsbrowe.' *Salix tenuifolia* should be 'banks of the Lune' (river), *not* 'Lime:' the very station originally stated by Smith. *Polypodium Dryopteris* should be 'in the *first* station,' instead of 'in the station.' Richard Buxton, a very accurate botanist and author of the 'Manchester Botanical Guide,' informs me that he found *Juniperus nana* growing with *J. communis* on Moughton, near Settle.

LIST OF FUNGI

Observed in the neighbourhood of Jedburgh, Roxburghshire.

The following list contains the *Fungi*, principally of the larger genera, such as *Agaricus, Polyporus,* and *Boletus,* observed in this neighbourhood in the course of two or three years. At the same time it must be considered a very imperfect one, as I am but a tyro in Mycology, being still ignorant of many of the minuter genera, and as my observations have been confined to this *immediate* vicinity.

I have experienced much pleasure in attempting to investigate these lower forms of the vegetable world, and would heartily recommend the study to those who, like myself, may have pretty well "worked out" the Phænogamous Flora of a district, and who are desirous of continuing their botanical researches. The multitude and variety of the forms which present themselves to us open quite a new world, as it were, and force us to exclaim with the Psalmist, "O Lord, how manifold are thy works! in wisdom hast thou made them all."

I. *Hymenomycetes.*

Agaricus (Amanita) vaginatus: woods and grassy places, common.
,, ,, muscarius: woods, very common.
,, ,, excelsus: woods, rather rare.
,, ,, rubescens: Fir woods, common.
,, (Lepiota) procerus: woods and hedge banks, rather rare.
,, ,, granulosus: woods and grassy moors, common. The white variety abundant in woods in the autumn of 1856.
,, (Armillaria) melleus: stumps of trees, common.
,, (Limacium) hypothejus: Fir plantations, common.
,, (Tricholoma) furcatus: Fir plantations, not common.
,, ,, rutilans: Fir stumps, common.
,, ,, imbricatus: woods, rather common.
,, ,, multiformis: Fir plantations, common.
,, ,, personatus: in woods and grassy places, common.
,, (Russula) emeticus: woods, very common.
,, ,, fœtens: woods, rare.
,, ,, adustus: dry banks in woods, common.

Agaricus (Galorrheus) torminosus: grassy borders of woods and heaths, not uncommon, generally of a beautiful strawberry colour.
,, (Galorrheus) blennius: Beech woods, common.
,, ,, deliciosus: in Fir and Larch plantations, not rare.
,, (Galorrheus) subdulcis: Fir plantations, very common.
,, ,, pyrogalus: grassy places under trees, rare.
,, ,, piperatus: grassy woods, not uncommon.
,, ,, vellereus: grassy woods, rare.
,, ,, exsuccus: grassy woods, rare.
,, (Clitocybe) flaccidus: Fir plantations, common.
,, ,, infundibuliformis, β. major: woods, common.
,, ,, giganteus: woods, rare.
,, ,, phyllophilus: woods, common.
,, ,, nebularis: grass under trees, rare.
,, ,, canaliculatus: woods and pastures, very common.
,, (Clitocybe) fumosus, β. folius: grass under trees, not common.
,, (Clitocybe) odorus: woods, not uncommon.
,, ,, cerussatus: woods, rare.
,, ,, grammopodius: pastures, common.
,, ,, camarophyllus: Fir woods, heaths, common.
,, ,, pratensis: grassy moors, not rare.
,, ,, virgineus: pastures, very common.
,, ,, psittacinus: pastures, not uncommon.
,, ,, conicus: pastures, rare.
,, ,, coccineus: grassy moors, common.
,, ,, laccatus: woods, very common.
,, ,, sulphureus: Fir plantations, common.
,, ,, radicatus: woods, not common.
,, ,, velutipes: rotten trees, very common.
,, ,, maculatus: heathy Fir woods, common.
,, ,, butyraceus: Fir plantations, common.
,, ,, confluens: woods, rare.
,, ,, dryophilus: woods, not uncommon.
,, ,, peronatus: woods, common.
,, ,, Oreades: pastures, not common.
,, (Collybia) tenacellus: on Fir-cones, common.

Agaricus (Collybia) Rotula: on stumps, etc., rare.
,, (Mycena) filopes: woods, very common.
,, ,, galericulatus: stumps of trees, etc., common.
,, ,, polygrammus: stumps of trees, etc., common.
,, ,, galopus: mossy moors, rare.
,, ,, purus: Fir woods, etc., common.
,, ,, epipterygius: on dead leaves, etc., common.
,, ,, corticola: trunks of trees, common.
,, (Omphalia) umbelliferus: moors, mossy places, common.
,, ,, fragrans: Fir and Larch plantations, rare.
,, ,, metachrous: Fir and Larch plantations, common.
,, (Omphalia) cyathiformis: woods and pastures, not rare.
,, (Pleuropus) inconstans: stumps of trees, rare.
,, ,, ostreatus: dead trees, not uncommon.
,, ,, serotinus: dead Birch trees, not uncommon.
,, ,, mitis: Larch and Spruce branches, common.
,, (Clitopilus) rhodopolius: dry Fir woods, rare.
,, ,, Pluteus: on stumps and by hedges, rare.
,, (Telamonia) gentilis: grassy places under trees, common.
,, (Inoloma) anomalus: woods, rare.
,, ,, glaucopus: woods and banks, not uncommon.
,, (Dermocybe) cinnamomeus: woods and banks, common.
,, ,, ochroleucus: dry woods, rare.
,, (Pholiota) aureus: stumps of trees, rare.
,, ,, squarrosus: stumps of trees, not uncommon.
,, ,, flammans: stumps of trees, not uncommon.
,, ,, mutabilis: stumps of trees, not uncommon.
,, (Myxacium) collinitus: under trees, rare.
,, ,, elatus: Fir woods, common.
,, (Flammula) inopus: Fir woods, rare.
,, (Inocybe) scaber: Fir woods, rare.
,, ,, flocculosus: pastures, etc., rare.
,, ,, geophyllus: Fir woods, not uncommon.
,, (Galera) tener: pastures, rare.
,, ,, hypnorum: mossy moors, not uncommon.
,, (Tapinia) involutus: woods and pastures, common.
,, (Psaliota) Georgii: pastures, common.
,, ,, campestris: pastures, common.
,, ,, præcox: pastures and hedges, common.

Agaricus (Psaliota) semiglobatus: pastures, common.
,, ,, æruginosus: pastures and woods, common.
,, (Hypholoma) lacrymabundus: stumps of trees, rare.
,, ,, lateritius: Fir stumps, common.
,, fascicularis: roots of trees, very common.
, (Psilocybe) fœnisecii: pastures, not rare.
,, (Psathyra) atomatus: grassy woods, not rare.
,, (Coprinarius) semiovatus: on dung, etc., common.
,, ,, fimiputris: on dung, etc., common.
,, ,, disseminatus: on stumps, etc., common.
,, (Coprinus) comatus: roadsides, etc., common.
,, ,, atramentarius: waste places, roots of trees, etc., common.
,, (Coprinus) micaceus: roots of trees, common.
,, ,, niveus: horse-dung in pastures, common.
,, ,, plicatilis: grassy places, not uncommon.
,, ,, ephemerus: dunghills, etc., common.
,, (Gomphus) glutinosus: Fir woods, rare.
Cantharellus aurantiacus: Fir woods, common.
Cantharellus cibarius: woods, common.
Merulius corium: on sticks, etc., common.
Polyporus squamosus: rotten trees, common.
,, varius; rotten trees, not uncommon.
,, sulphureus: rotten trees, rare.
,, crispus: stumps of trees, not uncommon.
,, amorphus: Fir stumps, not uncommon.
,, betulinus: dead Birch-trees, common.
,, salicinus: stumps of trees, not common.
,, versicolor: dead trees, stumps, etc., very common.
,, abietinus: dead Fir trees, common.
,, scoticus (Kl.):
,, subpileatus (Fr.): } roots of trees, hedges, common.
,, dryadeus: old Oaks, rare.
,, fomentarius: dead Alder-trees, common.
,, igniarius: on Willows, etc., rare.
Boletus luteus: Fir woods, etc., common.
,, Grevillei: Fir woods, etc., common.
,, bovinus: heathy Fir woods, common.
,, piperatus: dry banks, not common.
,, variegatus: Fir woods, not uncommon.

Boletus subtomentosus: woods, common.
„ luridus: woods and banks, not rare.
„ edulis: Fir woods, etc., common.
„ scaber: woods and heaths, common.
„ cyanescens: hedge banks, rare.
Hydnum repandum: woods, not uncommon.
Radulum orbiculare: dead Birch trees, rare.
Thelephora laciniata: on the ground, in Fir woods, not uncommon.
„ hirsuta: on dead trees, especially Oak, common.
„ sanguinolenta: on fallen trees, not uncommon.
„ quercina: on dead Oak branches, common.
„ Sambuci: on Elder, common.
„ epidermea: on dead branches of Birch, not uncommon.
„ comedens: on dead branches, common.
Clavaria coralloides, β. grisea: grassy places under trees, rare.
„ abietina: under Spruce Firs, rare.
„ pratensis: pastures, common.
„ corniculata: pastures, common.
„ rugosa: grassy woods, common.
„ fusiformis: grassy moors, not uncommon.
Calocera viscosa: Fir stumps, not uncommon.
Spathularia flavida: Fir plantations, common.
Morchella esculenta: riversides under trees, common.
Morchella semilibera: hedges, etc., not common.
Helvella crispa: woods, etc., not uncommon.
Leotia lubrica: woods and grassy places, rare.
Peziza reticulata: sandy riversides, common.
„ badia: on the ground, rare.
„ onotica: Beech woods, rare.
„ vesiculosa: dunghills, not uncommon.
„ tuberosa: woods, rare.
„ granulata: on cow-dung, common.
„ coccinea: on dead branches on the ground, rare.
„ scutellata: on dead stumps, not uncommon.
„ stercorea: on cow-dung, common.
„ æruginosa: rotten branches, not uncommon.
Bulgaria inquinans: on branches and fallen trees, not uncommon.
Tremella mesenterica: on furze, common.
Tremella sarcoides: on dead stumps, etc., not common.

II. *Gasteromycetes.*

Phallus impudicus: woods and hedges, not uncommon.
Nidularia crucibulum: on dead sticks, sawn wood, etc., not uncommon.
Sphæria Hypoxylon: dead stumps, common.
Sphæria cinnabarina: dead branches, common.
Ceuthospora Lauri: on dead leaves of Laurel, common.
Bovista nigrescens: grassy moors, common.
Lycoperdon gemmatum (several varieties): woods and fields, common.
Lycoperdon pyriforme: on rotten wood, etc., not rare.
Scleroderma vulgare: gravel walks, rare.
Lycogala Epidendrum: on dead trees, etc., common.
Reticularia umbrina: on dead Alders, not uncommon.
Æthalium septicum: on stumps, grasses, etc., not uncommon.
Arcyria punicea: rotten stumps, rare.

III. *Hyphomycetes.*

Mucor Mucedo: on decaying substances, common.
Aspergillus glaucus: on decaying substances, common.
Sepedonium chrysospermum: on decaying Boleti, common.

IV. *Coniomycetes.*

Tubercularia vulgaris: dead branches, very common.
Aregma mucronatum: on Rose leaves, common.
Podisoma Juniperi-communis: on Juniper, rare.
Æcidium Compositarum: on Coltsfoot, common.
  ,, Berberidis: on Berberry, common.
  ,, albescens: on Adoxa moschatellina, rare.
  ,, Epilobii: on Epilobium montanum, not uncommon.
  ,, Grossulariæ: on Gooseberries, not uncommon.
  ,, laceratum: on Hawthorn, common.
Uredo segetum: on Barley and Oats, common.
  ,, Labiatarum: on Mentha hirsuta, common.
  ,, compransor: on Petasites vulgaris, common.
  ,, suaveolens: on Cnicus arvensis, common.
  ,, Epilobii: on Epilobium montanum, rare.
  ,, Rosæ: on Roses, common.
  ,, effusa: on Roses, common.
  ,, Potentillarum: on Alchemilla vulgaris, common.

Uredo intrusa: on Alchemilla vulgaris, common.
„ cylindrica: on Populus balsamifera, common.
„ Caprearum: on Salix Caprea, common.

ARCHIBALD JERDON.

Mossburnford, near Jedburgh, N.B.

TOUR IN SCOTLAND.

Botanical Tour in the Highlands of Perthshire: Taymouth, Kenmore, Acharn Falls, Aberfeldie, Grandtully Castle and Inn, Dunkeld, and Perth.

After breakfasting, on the morning of the 19th, we set out on our homeward route. Ben Lawers, a classical spot in the annals of British Botany, had now been traversed; and though our success had been but moderate, we could look back with pleasure on a locality celebrated by many eminent men, who had visited this mountain-range not *once* in their lives, but several times every summer. This was the culminating point of our journey, and when we had reached it the grand object of our short Scottish tour was accomplished. It was both the furthest extent from our home and the greatest elevation above the coast-line that we had attained. About three weeks had been now spent in the Highlands, and spent very agreeably and not unprofitably. We had passed through a country of great interest and beauty, celebrated by poets, painters, sportsmen, and men of science. We did not enjoy *much* of what is called *Highland hospitality;* yet we are able to testify from experience that the ancient reputation of the inhabitants is not a *myth.* Hospitality is still one of the Highland virtues. Kind treatment, civility and courtesy, may be expected from the genuine *Celt.* Deference, politeness, readiness to give information to strangers, and quickness in anticipating their wants, are characteristic of a genuine descendant of the ancient *Gael.*

But our hearths and homes now began to exert their influence over our affections, and the charms of novelty had lost their fascinating power. The sounds of water and waterfalls were not so pleasing *now* as they were when *first* heard and seen. Rivers rushing over their rocky channels, lakes either calm or ruffled, mountain defiles, fringed with wood, or terrible with impending rocks, were *now* comparatively common objects; and they began to be objects of as much indifference as the sounds and sights of London are to the thorough-bred Londoner, who, intent on business or absorbed in social or personal cares, exhibits a passive indifference to what he meets while passing through the busy bustle of the crowded, noisy, *shoppy* thoroughfares of his native city. We began to be *home-sick.* Our relatives, our connections, our occupations, our domestic and social ties began to engross our affections and to exercise a more stringent influence on us than all the attractions of natural scenery and of natural science united. In a word, we were not sorry to turn our backs on Ben Lawers and all its beauties.

The road along the lower end of Loch Tay, from Lawers to Taymouth, is exceedingly pleasant. The character of the country improves with the slightly more favourable temperature. The gay agrarial annuals which were not even beginning to blossom about Lochearn Head and at the upper end of Loch Tay, were here flowering in profusion. The most showy were the Corn-flower or *Blawart* (*Centaurea Cyanus*), or *Guille* as it is called in Aberdeen and Morayshires (*Chrysanthemum segetum*), and the large-flowered Hemp-Nettle (*Galeopsis versicolor*). We did not see any examples of the Corn Cockle (*Lychnis Githago*), though we passed by several wheat-fields. We suspect it is not one of Scotland's common plants. We remember its first appearance in our native parish some time about 1812. The Poppies were not remarkably plentiful: yet we saw two species at least in the fields or by the waysides. But the genuine wild flowers of Scotland were plentiful and lovely as flowers can be. Scotland's Bell-flower, rivalling the English *C. patula* in size, and, in the intensity of its colour, the blue of Scotland's sky, and of her far distant mountains, when the evaporation is dancing in the sunbeams.

The Geraniums, the Orchids, the Roses, the Lady's-finger, the Craw's-taes, and many of less note adorned the grassy banks, burn-sides, and green nooks of many a field and headland. The Honeysuckle in the hedge, the Hawthorn in the copse, and the stately Foxglove, gave dignity as well as brilliancy to the scene. But the wavy Ferns that spread far and wide over the shaded braes were the most exquisitely lovely rural sights we had ever seen. The exceeding gracefulness of the plants, especially when in broad masses, their elegant often pensile foliage, and the various shades of green which are reflected from the leaves of the different species can hardly be imagined by those who have not seen them in similar situations.

About midway between Lawers and Taymouth the road approaches the shores of the lake. Here we looked into the water for aquatic plants, but as usual without success. Either the season was ungenial or the roll or motion of the water hindered their growth. Whatever the cause may have been, few alpine aquatic plants fell in our way. Small quantities of a fine metallic-like sand were observed here and there in little heaps, or spread out in shallow baskets or on coarse cloths. On inquiry at a wayside cottage we learned that this sand had recently been collected and exported to Birmingham, where it was employed in certain manufactorial processes, which the simple natives were unable to describe. They were able to tell us that the export of the *sand* had been forbidden by the noble Marquis, and also that the small parcels which we observed were used for making whetting-boards on which scythes, reaping-hooks, etc. were sharpened.

The road passes over the extremities of Drummond Hill, which is clothed with wood on its eastern and southern sides. Here it has all the appearance of a forest. The gardens of Taymouth lie under this hill, having the road on the upper side and the lake on the lower; they are very extensive. After having passed along the garden wall, which was on our right, we got a view of the Tay issuing from its parent lake and spanned by a noble bridge not more than 40 or 50 yards from the source of the river.

Judging by the eye, not always an accurate measurer of distance or magnitude, we should think that the river here is about as wide as the Thames at Kew or Richmond. But judging by the rapidity of the current in the Scottish river, about twice as much water may pass under the bridge at Taymouth as passes under the bridges of Richmond or Kew, if the tidal water is deducted from the Thames. We were once near giving offence by hinting that the channel of the Seine held as much water as that of the Thames at low water. The former drains a larger area than the latter. But this is not always a sound criterion for estimating the amount of water in a given channel. A hundred square miles in the Highlands will supply more than twice the quantity of water which an equal area in England can: first, because the rain is double, and second, because the evaporation is not half so much as it is in the south of England. Before the Tay leaves the domain of the lord of its source it is augmented by the Lyon, another very considerable river, which rises in a lake of the same name far up among the hills on the north side of Glen Lochay.

Kenmore, which is just over the bridge on the right bank of the Tay, is an assemblage of small white cottages, forming, with its old-fashioned inn, two sides of a square. The upper side of the square is bounded by the church and churchyard, and the lower side by the wall and gateway to Taymouth Castle. About half-a-dozen cottages and the Free Church are built on both sides of the road to Aberfeldie: these, with the aforesaid square, constitute the village of Kenmore. Every place here is an appendage to the Marquis's lordly mansion. It is everything; and every one here is a retainer, a dependant, or a servant of the noble owner. We ought to except the clergy, the schoolmaster, and the innkeeper. The Marquis has the reputation of bearing his honours gently.

From Kenmore we walked along the park, under Drummond Hill to Glen Goldie and Fortingal, the latter celebrated for an immense yew-tree, which, if entire, would have a circumference of 56 feet, but only a portion of the circle remains, the deficient parts being either decayed or existing in a fragmentary state. The yew is still alive, though in a mutilated state, and is now likely to survive many more generations of men, for it is protected by an iron palisading to prevent future depredations. On this road, about halfway between the bridge of Tay and the Glen Goldie gate of the park, stands a cottage very much admired, it is said, by Royalty when Royalty condescended to honour Taymouth with its presence. Those who wish to peruse an account of this and other celebrities of Taymouth should read Sir T. Dick Lauder's account of the royal progresses in Scotland.

About three miles from Kenmore there is a ferry over the Lyon, and at the end of the ferry-house there is an old castle or fortalice, all covered with ivy. The road winds round the base of the hill, and leads along the right bank of the Lyon up to Fortingal. In the middle of this Glen, before coming to the entrance of Glen Lyon, stands Garth Castle, the residence of Col. Stewart, a gentleman famed for his knowledge of Celtic history, manners, etc. We found, opposite to this Highland mansion, a charming though rather steep footpath over the hill to Kenmore. From the eminence we had views of Ben Lawers, Schehallion, Glen Lyon, etc., on the one side, and on the other charming peeps, through the trees which clothe the east side of the hill, of Taymouth Castle and grounds, Kenmore, Aberfeldie, the braes of Dull, etc. etc.

In the evening we walked along the Aberfeldie road, which skirts another side of the park, and visited the battery opposite to the castle. This has the fame of affording one of the finest views in Scotland: it is worth seeing. On this platform there are mounted several guns, not for the protection of the castle, but to announce great events. Happily the guns are now only employed on festive occasions. Here there is a very complete museum, where specimens of all the quadrupeds and birds, or portions of them, that have been killed on the estate are preserved. The wild cats are large and singularly handsome. Of the birds, the eagles, capercailzies, etc. are the most interesting. The floor is very appropriately carpeted with skins of divers kinds of beasts killed on the Marquis's estate.

The next day, the 20th, was the day of rest, and we attended Divine service in the parish church of Kenmore. There is a zigzag road leading up the steep hill to Crief. From some of the angles of this road exquisite views of the Lake and of Taymouth's noble halls, fine trees and extensive park, are to be had. This road leads over an immense tract of table-land at a considerable elevation above the vale. About four miles from Kenmore the summit is attained, where there is nothing to be seen but barren wilds of immense extent, and dreary waste, abounding in moor game and little flocks of timid sheep, and here and there a few red deer. The distance between Kenmore and Crief is above twenty miles.

The greater part of the 21st was devoted to the park and gardens of Taymouth: both are very extensive. But we did not go to the Highlands to see parks and gardens; although, to say the truth, few more magnificent parks than Taymouth are to be seen: environed on all sides by lofty hills, clothed to their summits with thriving woods, watered by two grand rivers, the Tay and the Lyon, and possessing as much variety in level lawn, sloping banks, and swelling hills as fall to the general lot even of parks; and the whole is ornamented with the noblest specimens of Beech, Chestnut, Oak, Fir, Birch, and other trees. There is a celebrated avenue of Limes, a mile long. The extent of Taymouth Park is said to be thirteen miles in circumference. But the attractions of home were more powerful than the attractions of Taymouth, and therefore in the evening we packed up all our *traps* and acquisitions of every sort and kind, in readiness for the Perth carrier, who leaves Acharn for Perth every week, calling at Kenmore about six o'clock every Tuesday morning. In the morning we saw our baggage safely deposited on his cart, went to breakfast, and were on the road to Dunkeld before eight o'clock.

Before taking our final leave of Kenmore we have to notice another scene, one of the most interesting of its kind, viz. the Falls of Acharn. About two miles from Kenmore, on the right or south-east side of Loch Tay, is a large hamlet or group of cottages recently erected in a rather pretentious style, but sufficiently in character to harmonize well with the fine scenery. No church is here: Kenmore is the parish, where are *two* churches, although *one* would hold all the people, if they were all of one mind on certain minor points, neither affecting doctrine, discipline, nor mode of worship; but the less the *difference*, the greater the animosity of the *dissentients*. This hamlet contains however a mill, a smithy, a carpenter's shop, and a good school. On the stream above this latter and recent erection there is a hermitage without a hermit, and a waterfall *not* without water, like the cascades of the Leasowes,—Shenstone's famous folly. The water here has worn for itself a channel of awful depth, and strong are the nerves and cool should be the head of him that ventures to look down through the shading foliage upon the dark linns. About half a mile up the hill is the lower and most imposing of the falls of Acharn, with its hermitage built opposite, where, through a glass door or window, the cascade is viewed very much to the ease and even comfort of the spectator, who is furnished with a chair, a Claude Lorraine glass, a prism, and sundry *etceteras*, artfully contrived to draw the coin from his pockets. Milk and honey flow abundantly from the lips of the genuine Celtic *cicerone;* and hard-hearted must the Sassenach be who does not feel the effects of the *soft sawder* in the most sensitive part of his person, *his breeches-pocket*. This however is a scene well worth seeing; and specimens of *Polypodium Dryopteris*, growing within reach of the spray from one of the falls, may be had in any ordinary quantity, and of any ordinary or even extraordinary dimensions.

The guide to the natural and artificial notabilities of the locality informed us that Burns visited this hermitage and cascade, and that the following lines, part of those written over the chimney-piece in the parlour of the inn at Kenmore, have an especial reference to this scene:—

"Poetic ardours in my bosom swell,
Lone wandering by the hermit's mossy cell:
The sweeping theatre of hanging woods,
The incessant roar of headlong, tumbling floods.
* * * * *
Here poesy might wake her heaven-taught lyre,
And look through nature with creative fire."

Both thought and expression are good, but there is little, if any individuality, contained in the poetry: it might serve for any other waterfall just as well as for this, if the said fall had the accessories of wood and a mossy cell. This great poet does not shine in the kind of poetic composition called descriptive; he had a far higher calling than this; he describes but too truly, as well as forcibly, the sorrows, the sufferings, and the wrongs of humanity; the loves, the joys, the pleasures, the toils, the cares, the fears, and the hopes of men and women generally, and in particular of those of his own class. His descriptions of nature are sometimes, as in the above quoted passage, generalities, and therefore touch few sympathetic chords in the human heart. His poetry is not an exponent of nature, but of natural feeling.

The following list of Kenmore plants is from the 'Statistical Account of Scotland,' vol. for Perthshire, 475. It ought to be observed that we did not see any of them, but we enter them on the authority of the reverend gentleman who drew up the account of the parish. *Scirpus sylvaticus, Bromus asper* and *B. giganteus, Anchusa sempervirens, Lysimachia vulgaris, Reseda Luteola, Geranium sanguineum, Astragalus glycyphyllus, Eupatorium cannabinum, Carex pendula.*—In woods and hedges: *Convallaria majalis,* etc., *Campanula latifolia, Rosa spinosa, R. involuta, R. cæsia.*—Marshes: *Hippuris vulgaris, Lysimachia Nummularia, Radiola Millegrana, Scrophularia aquatica, Hypericum Elodes.*—In lakes: *Potamogeton heterophyllum, perfoliatum, densum, lucens, crispum, pusillum, Lobelia Dortmanna, Œnanthe fistulosa,* *Cicuta virosa, Littorella lacustris, Subularia aquatica, Jasione montana, Sanicula europæa, Allium ursinum, A. vineale, Pyrola rotundifolia, P. secunda, Saxifraga granulata, tridactylites, Ornithopus perpusillus, Epipactis palustris.*

The way to Dunkeld is along the right bank of the Tay, having the river on our left, and the high grounds of Aberfeldie and Moness on our right. The distance of Aberfeldie from Kenmore is five miles. This village (Aberfeldie) is one of the largest and neatest which we had seen in the Highlands. It is rather larger than Callander, and contains several better houses than the latter can boast of; but the surrounding scenery of Callander is finer than that of Aberfeldie. The latter has the Tay, the finest of Scotland's rivers—of British rivers? We have not seen the Shannon. Callander has the Teith; but it has also Ben Ledi, and the Pass of Leny, and Lubnaig, and the Crags of Callander, which surpass every scene about Aberfeldie, except its Falls; but Aberfeldie is a very enjoyable place, and Killiecrankie is within a moderate distance, and Taymouth only the distance of a walk before breakfast. Dull, celebrated in the ancient ecclesiastical history of Scotland, is near, and accessible by a bridge, which connects Aberfeldie with Weem, on the left bank of the Tay.

We rested an hour at this agreeable place, and then walked onwards by Grandtully Castle, and, passing several other places of less note, reached Dunkeld, nearly twenty-three miles from Kenmore, about five o'clock. Our road was very pleasant, being never far from the river, often on its very brink. At Logierait the united rivers of the Tummel and the Garry combine their floods with the Tay, which is now enlarged to at least double of its original size. The distance from this point to Dunkeld is about eight miles, and the road along the south side of the river is about as beautiful as can well be conceived. We did not increase the botanical department much during this walk, but we increased our knowledge of the Tay and its banks, and were as enthusiastic in its commendations as ever was a gentle knight in the praises of his lady-love.

Near to Dunkeld the scenery became much more imposing; the steep hanging woods and the abrupt cliffy hills presented views such as we had never seen. We had seen higher and more romantic cliffs; but we had never seen any with so many pleasing adjuncts, as trees, green meadows of the richest soil and the liveliest colour, the waters of a noble river, the distant hills, some of them clothed with wood to their very summits, some in all the wildness of native greatness, without a tree to mitigate the savage aspect of the scene. Dunkeld has been very fortunate in being noticed both by artists and descriptive historians; many eloquent and ready writers have celebrated its attractions. It has been lauded, strangers might fancy, far beyond all the bounds of moderation and truth. Some have entitled it the *gem* of Scottish landscape; others, the *cynosure* of Highland beauty, etc. This is unquestionably high praise; yet we do not say that it is too much. We had now seen the celebrities of Perthshire; Bridge of Allan, Callander, the Trosachs, the Pass of Leny, Lochearn, and Killin, and last, but by no means least, Taymouth. After seeing the aforesaid celebrities, we give the preference to Dunkeld. We will not say that one word written in its praise is extravagant.

But this charming spot reminds us of the havoc that time, experience, and observation make in the hoard of long-treasured notions and ideas, or imaginary pictures of celebrated places. We had of course pictured to ourselves a mental representation of Dunkeld, and with pensive feelings we now note how unlike the dreams of bygone times are the existing realities. We knew there was a bridge and a river at Dunkeld, the remains of a cathedral, and fine hills and trees, besides the rumbling bridge, the falls, etc. This is all true. There is a river in Macedonia and there is a river in Wales; there is a river in Monmouth as there is one at Dunkeld; but that the river might be all enclosed, the cathedral and churchyard shut up, even the very hills *tabooed*, never entered into the composition of our long-cherished imaginary picture. We never felt so *keenly* the force and truthfulness, as well as the beauty, of a stanza in Wordsworth's 'Yarrow Unvisited,' viz.,

> "The treasured dreams of times long past,
> We'll keep them winsome marrow;
> For when we're there, although 'tis fair,
> 'Twill prove another Yarrow."

Dunkeld proved indeed different from the city of our imagination. Our treasured dreams of bygone times were dissipated by the stern reality. From the aforesaid fact a useful lesson might be deduced, if this were the place for moralizing.

A moralist would say, "the reality is always exceeded by the anticipation." Perhaps so. Most people can testify from experience that their real enjoyment of a scene is often much less than their anticipations were. It is not our wish to *run a muck* against his Grace of Athol, but we think it is a shabby thing to shut up Craigie Barnes, Birnam Wood, etc.; yet it is defensible on the principle pleaded long ago by another *duke,* "Is it not lawful for me to do what I will with mine own?"

We walked about Dunkeld for an hour or two, and then went to rest; and if we were disappointed on finding every place in and about this ancient city shut against us, except the high-roads, the shops, and hotels, we were not disappointed in the enjoyment of a good night's rest. This we needed after a long walk, and with another walk not very short awaiting us.

The most remarkable buildings about Dunkeld are the hotels; these are not notable for anything striking in their architecture, but merely for their immense size. It may be said the hotel at Paddington, at the terminus of the Great Western Railway, is as large as either of the Dunkeld establishments. Perhaps it may be so; but the inhabitants of London are between two millions and three millions: those of Dunkeld only a few hundreds. The Duke's residence is very small; and possibly his Grace, who has the reputation of an economist, has caused ample provision to be made in the town for those who might expect an *entrée* into the ducal mansion in the park.

On the 23rd, we were on the bridge of Dunkeld at five by the cathedral clock, intending to walk to Perth to breakfast. This we accomplished without distressing ourselves. The Dunkeld end of the road is interesting enough, especially the celebrated pass between Birnam Hill on the right bank of the Tay, and the elevation near Caputh, on the other or left bank. Birnam Wood is said by Dr. Macculloch to be still suffering from the effects of its march to Dunsinane in the days of Macbeth, but we think it has recovered some of its leafy attractions since the doctor's day.

With the exception of the first three miles from Dunkeld, there is nothing in the scenery of the remaining fifteen miles to repay a pedestrian for the tear and wear of shoes, muscular exertion, and time. As lovers of the picturesque we would have preferred the north side of the river, but we were told there was no road, and we had not time to *improvise* a new track for ourselves.

The plants noticed on this portion (the last one) of our walk were not numerous, but more so than the acquisitions of the previous day. On the 22nd we walked in the Highlands, but most of our last morning's walk was in the Lowlands.

On the roadside, not far from Scone, *Pyrola media* was gathered in fruit. We had on the previous Saturday seen two fine examples of this species in full flower, on the summit or near the summit of Drummond Hill, at Taymouth. This specimen, collected near Perth, showed that the temperature of the lowlands of Perthshire was considerably higher than that of the highlands; for though the distance be only thirty miles, yet the difference in elevation is considerable, probably three hundred yards. The highland specimens were in full flower, the lowland examples were in fruit. We observed the following species for the first time in Scotland:—*Linaria vulgaris,* a rare plant in Perthshire; also *Veronica Anagallis,* which is a rarity in other parts of the British Isles, as well as here. The other two rarer *Sinapides,* in addition to *S. arvensis,* were collected, viz. *S. alba* and *S. nigra,* both struggling for an establishment in this northern latitude.

In waste places about Perth we also saw *Dipsacus sylvestris.* This is the last botanical rarity we have to register.

Perth is a fine city, situated on a fertile plain on the right bank of the Tay, and partly surrounded by hills of no great elevation, and at some distance from the town. The country in its vicinity is very fertile, and the scenery good. The spurs of the Ochil Hills are the most conspicuous objects in the landscape. The Tay and its bridge, and the beautiful Inch, are the most attractive features of Perth. One of the churches, St. John's, is the finest church we saw in Scotland, a country not remarkable for the grandeur of its ecclesiastical edifices. The bridge of Perth is probably the best in Scotland; but Scotland is more remarkable for its rivers than for its bridges,—for natural rather than for artificial beauties. It is said that the legions of Agricola, on their march northwards, when they came within sight of the Tay, exclaimed, *Ecce Tiberim!* They might easily have paid a shabbier compliment to their native river. People generally exaggerate the qualities of what is their own. To the Cockney no river is like the Thames; to the *badaud* of Paris the Seine is the fairest river in the world; and a true Roman loved the yellow Tiber. The Tay, though large and beautiful, has very few bridges to boast of. London and Paris have each many more than this river, which is larger than both of the rivers which flow through the celebrated capitals of England and France. We know only four, which unite the banks of the fairest British stream, viz. the bridges of Taymouth, Aberfeldie, Dunkeld, and Perth. There are also two in the domain at Taymouth Park, but they are private property; so is the bridge of Dunkeld, though the public may use it on payment of a fixed toll. There is a good ferry at Logierait; yet a few more bridges would be convenient. The distance from Taymouth to Perth is thirty-seven miles, and allowing for the bendings of the river, not very considerable, the distance may be forty miles. Four bridges for this extent is rather a short allowance. The distance between London and Windsor is about twenty miles, and the number of bridges is nearly as many. The population on the banks of the Thames above London Bridge is probably one hundred times as many as the inhabitants of an equal length of the Tay.

The Perth, Dunkeld, and Blair of Athol railway will probably increase the population of this beautiful and fertile tract; at all events it will supply the means of transporting the natural productions of the country, viz. timber, cattle, sheep, horses, dairy and agricultural produce, to remote parts of the kingdom, where there is a good market for these necessaries. Instead of a carrier conveying goods once a week, and a post-cart conveying letters every other day, there will be daily intercourse established with all the great marts of the South; provisions will be as plentiful and cheap in the Highlands as in Glasgow and Perth, and the tide of population will flow upwards and onwards till the Highland glens are as populous as the Carse of Gowrie.

ASPLENIUM GERMANICUM IN SOMERSETSHIRE.

To the Editor of the 'Phytologist.'

Miss Payne has obligingly sent me the following account of her discovery of this rare Fern in Somersetshire, and with her permission I forward it for the information of those readers of the 'Phytologist' who are interested in Ferns:—

"When at Lynmouth in the latter end of October, 1854, I was informed that *Asplenium septentrionale* was to be found in

Somersetshire. The place was pointed out to me, and I discovered the Fern growing plentifully on a wall, which extended some distance. My sister, who was with me, called my attention to another Fern on the same wall, which on examination proved to be *Asplenium germanicum,* and on searching further I found several roots, four of which I brought away with me; one of them I dried, and the other three are growing under a glass. —A. C. PAYNE."

For obvious reasons, Miss Payne very properly is desirous that the more exact locality should not be stated. I may add, in confirmation of the above, that a specimen with which I have been favoured is without doubt the true *Asplenium germanicum* of the larger form, which occurs abundantly in Switzerland.

T. MOORE.

Chelsea, Jan. 20, 1857.

UNCOMMON STATE OF PTERIS AQUILINA.

Pteris aquilina *at the Public Baths, Coventry.* By T. KIRK.

The curious state of *Pteris aquilina,*[*] respecting which your correspondent requests information, first made its appearance in 1853,—the bottom of a place intended for a plunging-bath, but remaining in an unfinished state, being completely covered with a dense carpet of the seedling state of this Fern. The soil in which it grows is nothing more than ceiling mortar, and the like rubbish, from the demolition of old buildings, which must have been deposited on the spot previous to the erection of the baths, and readily crumbles to dust, as it obtains no moisture except what it derives from the atmosphere. During the first two seasons the entire fronds were of a more delicate pale green colour, and the pinnæ much more diaphanous, than in the ordinary seedling state of the plant. No approach to fructification has yet been noticed; in fact, except that its delicate transparency of texture is in some measure lost, and the fronds are somewhat stronger, all the characteristics of its seedling state are retained. Many of the plants now have rhizomes six to ten inches long, with fronds four feet and upwards in length, but unable to bear their own weight. Bipinnate and tripinnate fronds frequently occur on the same root; some fronds were produced this season

[*] See 'Phytologist,' pp. 390 and 463.

resembling the curled and convex states of *Lastrea dilatata,* presenting a wide disparity from the ordinary appearance of the plant.

In previous seasons the fronds have retained their freshness until the month of December; but I regret to say, owing to their wanton destruction by visitors during the present season, not a perfect frond was to be seen by the close of October, all having been completely trampled down.

It is not easy to account for its occurrence in this singular habitat, except on the supposition of spores having, by some means, been mixed with the rubbish prior to its being deposited on the spot. It could not have existed here in its natural state, as the site of the Baths was portion of a swampy meadow, frequently overflowed by the river Sherbourne; and it is not now found wild within upwards of a mile of the place, although so late as 1852 a few plants existed on a neighbouring brick wall, but these were invariably barren, always retaining the tender and delicate appearance characteristic of this plant when growing in similar situations; as for instance on a brick wall at Honily, in this county, where it may still be seen.

As a not inappropriate pendant to this note, I will mention the occurrence of *Lastrea Filix-mas* in company with one or two diminutive plants of *Ceterach officinarum* on a brick wall near the centre of our city, where I have noticed them for the last fourteen or fifteen years; whilst a cluster of Ferns, comprising *Polypodium vulgare, Lastrea dilatata, L. Filix-mas, Athyrium Filix-fœmina,* and *A. rhæticum minus,* may be seen springing from the brick-work near the top of the engine-house at our railway station.

Coventry, December, 1856.

Reviews.

The 'Phytologist,' a Botanical Journal. The concluding part of Vol. V., with Title and Index. London: Van Voorst.

The leading article of this number is entitled the Botany of the Chesil Bank, Portland, by Mr. W. B. Barrett; interesting both to the geologist and to the botanist. The latter will justly deem the following plants in the list *rarities,* viz. *Lathyrus maritimus, Euphorbia Paralias,* and *Schoberia fruticosa;* the latter plant has some considerable influence on the aspect of this portion of the Dorsetshire coast; but it will be better to state this in the words of the author of the article. "The most striking feature however of the botany of this beach is the abundance of *Schoberia fruticosa.* It grows to a considerable size, and many of the stems exceed three inches in circumference. This plant, with the various species of sea-purslanes, constitute by far the greater part of the vegetation for several miles. Of the sea-purslanes, the shrubby orache (*Atriplex portulacoides*) is the most abundant; the spreading halberd-shaped orache (*A. patula*), and the spreading narrow-leaved orache (*A. angustifolia*), are both common; the grass-leaved sea orache (*A. littoralis*) occurs much less frequently."

Several plants of rather frequent occurrence are noticed, of which *Conium maculatum, Chærophyllum temulentum, Aster Tripolium, Glaux maritima, Tussilago Farfara,* and *Sedum acre,* may be quoted as examples. To those botanists who are interested in the subject of the distribution of species, the most attractive part of the article will be the names of plants once produced on this bank, but which have subsequently disappeared from this as also from other localities. The author remarks "that no traces of *Vicia lævigata* have been found (observed) on the Chesil Bank, a plant discovered by Mr. Hudson on the beach at Lodmoor, near Weymouth, and said to have been found on the Chesil Bank and in Portland, by Sir J. Cullum; nor have repeated searches on the beach at Lodmoor of late years been more successful. These were the only stations recorded for this species in the whole world; and there seems now little doubt of its being extinct."

A *necrology* of British plants would not be altogether devoid of interest. *Crambe maritima* is also one of the defunct on the Chesil Bank; *item, Glaucium phœniceum, Althæa officinalis,* a common plant in the salt-marshes of North Kent, and in many other similar localities, and *Cladium Mariscus.* A history of the past and present botanical productions of Battersea fields, Hampstead Heath, Woodford, and other places in the immediate proximity of London, of which accounts of their vegetation in bygone times are extant, would not be uninstructive. In these localities and other places changes have been going on which gradually and almost imperceptibly have effected great alterations in their vegetable productions. The disappearance of several plants from that portion of the Dorsetshire coast is not without a parallel in the annals of vegetation elsewhere.

We wish some of our Dorsetshire or Suffolk correspondents would be so obliging as to inform us if the Sea-Pea be as productive as it was in the times of Gerard, when "it grew on a place all hard stone and pibble, called Shilfe, between Oxford (? Orford) and Oldborough, whereof the poore gathered above an hundred quarters (as man judged), yet remained some ripe and some blossoming as many as ever there were before." *Portland Sago* is also renowned among the marvels of vegetation that existed in past ages.

Another article in the number is 'Remarks on the New Method of Arranging Ferns,' and a brief 'Note on *Pseudatherium flexile*,' both by Mr. Newman. The former is rather above or beyond our *cut*, but we cordially recommend it to the attentive perusal of pteridologists.

The Natural History Review, No. 1, January, 1857. London: Williams and Norgate.

This well-conducted and useful periodical contains reviews of the British Diatomaceæ, by W. S. Dallas, of the 'Manual of British Botany,' by Mr. Babington, and 'Glaucus, or the Wonders of the Shore,' by the Rev. C. Kingsley. There are many other Works on Zoology and Geology reviewed or noticed, but these sciences are beyond our border: we are restricted to Botany. This number contains reports or abstracts from original communications made to the various societies in Great Britain and Ireland, during the past year or the latter portion of it, together with the contents of the numerous serial publications devoted to natural science and published in America, Great Britain, Belgium, Denmark, France, Germany, Holland, Italy, Sweden, Switzerland, etc. There are a few passages which have been marked as likely to interest our readers, and these we intend entering from time to time when we can find room for them, indicating the source from which they are derived. Etiquette does not sanction the practice of reviewing reviews, and consequently we have only cordially to recommend the 'Natural History Review' to the notice of our readers.

BOTANICAL NOTES, NOTICES, AND QUERIES.

SIR,—The enclosed *Hypericum* was gathered near to Ince-Blundell, near Liverpool, on the 4th of August, 1853. It was growing in considerable quantities under Ince-Blundell Park-wall, and was a large, bushy shrub, upwards of *two* feet in height. GEORGE HUNT.

Handsworth, near Birmingham.

The *Hypericum* for which we are indebted to our correspondent was duly received, and some notice of it will be forthcoming.

ASPLENIUM ANCEPS.

Having read in the 'Phytologist' the announcement of Mr. Andrews' interesting discovery of *Asplenium anceps* at Killarney, I was led to reexamine a very luxuriant form of *Asplenium Trichomanes*, which I gathered last summer, on the wall of an old bridge, in a most sheltered spot, near Galway. The rachis was very long, and I remarked at the time the unusual size of the fronds. Mr. Pamplin, of Frith Street, sent me some exotic Ferns lately; one of them is marked "*Asplenium anceps*, Lowe—Coll. Bourgeau, 1855." The fronds of my Fern are much larger than those of the plant from the Canary Islands. C. A. C.

Ballinasloe, February 7.

SIR,—Were any additional observations required to confirm those of Mr. Stowell, on the natural habitat of *Saxifraga Tridactylites*, I can state that the plant grows very abundantly in this vicinity, both on St. Vincent's Rocks and those of Durdham Down; I have also gathered it frequently in Cardiganshire, on rocky ground, never there on walls or artificial erections. M. M. ATWOOD.

Clifton, February 4, 1857.

PYRUS DOMESTICA.

In the 'Phytologist' for 1856, p. 300, Mr. Douglas appears to decide the question which might be raised about the nativity of the *Pyrus domestica*, Sm., on the authority of Parkinson, who, in his 'Theatre of Plants,' says, that this rare tree was introduced into the land by John Tradescant. This is no doubt true. But does Mr. Douglas mean that the old Service-tree of Wyre Forest was either introduced by Tradescant, or that it is a descendant from one of his introduced trees? The Sorb-tree of Wyre Forest appears to be of greater antiquity than the times of Elizabeth and Charles I., when Tradescant lived. BETA.

NAMES OF PLANTS, DERIVATION OF.

LIGUSTRUM, the name of a flexible, slender shrub, the pliant twigs of which may have been used as bands, ligatures, and such-like. The term is probably from *ligo, I bind*. The classical proverb, "*Alba ligustra cadunt, nigra vaccinia leguntur*," or "the white flowers of this shrub drop off, but the black berries of this or some similar shrub are collected and preserved for use," is derived from this plant. Heywood, the famous English epigrammatist, in the reigns of Henry VIII., Edward VI., and Mary, rendered this proverb rather quaintly and not inelegantly, in the following words:—

"Snow is white and lies in the dyke,
And all men let it lie;
Pepper is black and has a good smack,
And all men do it buy."

The modern spelling is given. The poet intimates that beauty, like a flower, soon fades. The ancient classics appear to have had an intense admiration, or perhaps veneration, for natural beauty, and the fervour of their devotion to this deity was in the inverse ratio of its permanence. The sarcastic moralist teaches us that beauty, like everything else, is to be valued at its market-price, and

"The market-price of anything
Is just as much as it will bring."

CAUSTICUS.

CHERITON GOSPEL OAK.

(*From the Winchester Observer.*)

Many of our Alresford readers must remember that active county magistrate, the late John Duthy, Esq., of Ropley; and in his delightful 'Sketches of Hampshire,' published after his death, appears the following:—"In the northern part of the parish of Cheriton, where its limits abut on those of Ovington, stand the remains of a venerable tree, called the Gospel Oak, which is mentioned as a known and ancient boundary in an old manuscript, without date, among the muniments of the bishopric of Winchester at Wolvesey; and again in a survey taken about the year 1560, and is stated to have been so denominated because the Gospel was wont to be said there in the perambulation [treading the bounds] week, between the lordships of Cheriton and Ovington. Among the traditional stories of the rural sages of Cheriton, on the subject of this Oak, it is gravely recounted that it is the spot where the Gospel was first preached in this neighbourhood, before any parish or church existed here. It is almost needless to add that this rumour has no better foundation than village lore, or an old wife's tale; yet it serves to mark the general belief in the antiquity of this venerable vegetable ruin, the remains of which cannot be less than four or five centuries old, and probably much older."

ACONITUM NAPELLUS.

In the beginning of July I had the pleasure of discovering a new locality for this plant, in the northern part of this county (Monmouth), by the side of a small brook, in the parish of Llangattock Lingoed. I do not specify the place more minutely, for fear of its having too many visitors.

JAMES BLADON.

Communications have been received from

Dr. W. Lauder Lindsay; J. S. Mill; C. A. C.; M. M. Atwood; W. M.; W. L. Notcutt; W. Dickinson; Maxwell T. Masters; Rev. A. Bloxam.

BOOKS RECEIVED FOR REVIEW.

Monograph of the Genus Abrothallus; by W. L. Lindsay, M.D., etc.
On the Flowering Plants and Ferns of Oxfordshire; by Maxwell T. Masters.

ON THE HIERACIA OF SETTLE, etc.

By John Windsor, F.L.S.

In the list of Settle or Craven Plants, publishing in the 'Phytologist,' I enumerated the species of *Hieracium*, from my notes written at the time I was residing in that neighbourhood.

Mr. Baker, of Thirsk, who has paid much attention to this genus, kindly inspected my specimens, collected there many years ago; and by his aid an amended list of them was published in the 'Phytologist' for October last.

A few additional remarks on the subject may perhaps not be objectionable, especially as the genus is one which has of late years, like some others, as *Rubus, Rosa, Salix*, etc., undergone considerable investigation and elucidation, or at least multiplication of species, by the accurate attention applied to it by a succession of eminent botanists.

These few observations however are now added rather by way of explanation of my first list, than of any novelty or particular information I can adduce on the subject.

First, then, with regard to the plant named in Backhouse's late excellent and elaborate 'Monograph on British Hieracia,' *Hieracium Gibsoni*, I may be permitted to observe, that I can scarcely admit with him that it was discovered by the late Samuel Gibson, inasmuch as it was well known to myself and predecessors for many years, I believe, before Mr. Gibson had ever visited the neighbourhood of Settle. I would not however object to the name, if it be really a distinct species, and not merely a spotted form or variety of *H. cæsium* or *H. pallidum*, from the pains he took in distinguishing it (as seen in the first volume of the 'Phytologist') from *Hypochœris maculata*, to which, by its spotted leaves, it bears a resemblance, and with which it was at one time certainly confounded. How this first occurred I do not exactly know.

In 1795, in 'English Botany,' *Hypochœris maculata* is said to grow in the sequestered country about Malham Cove, but no particular authority is named. In Smith's 'Flora Britannica' (1800) it is mentioned, on the authority of Mr. Caley (in Withering's Botany), to grow near Settle; and the same quotation is continued in Smith's 'English Flora' (1825).

In the fourth edition of Withering's Botany (1805) it is mentioned as found by Mr. Caley near Ottermire (or Attermire) Cave, Settle, Yorkshire. I have not the second or third editions of Withering, and no particular habitats for it are mentioned in the first edition. In the 'Botanist's Guide' (1805), p. 708, the mistake is continued, also on the authority of Mr. Caley; but in the same work (p. 707) there is a remark, under *Hieracium murorum*, or spotted variety, that the late Mr. Teesdale intended to take it up as a distinct species, under the name of *Hieracium maculatum*, as it did not vary by cultivation; and in this opinion Mr. Dawson Turner concurred, the latter remarking that, besides preserving its spotted leaves, its habit was dissimilar to that of *H. murorum*. From that period, it may be remarked, *H. murorum* and *H. cæsium* were not distinguished.

In the list of plants appended to Whittaker's 'History of Craven,' *Hypochœris maculata* is also erroneously quoted as growing about Attermire Cave; I refer to the second edition, published in 1812. In Ray, the third edition, p. 167, *Hyp. maculata* is *not* mentioned as growing near Settle; but in the next page the editor alludes to a spotted variety of *Hieracium murorum*. Curtis, in his 'Catalogue of Plants growing about Settle' (1782), only mentions two species, *H. murorum* and *H. sabaudum*, and no *Hypochœris*. Of *H. sabaudum* he remarks, "This plant, in its usual state, is extremely common. A variety, whose leaves are spotted with red, and which is sometimes mistaken for the *Hypochœris maculata*, is frequent on the rocks in Grasswood, and at Gordale." Curtis very probably here alludes (although apparently wrong in calling it a variety of *H. sabaudum*) to the plant which Mr. Backhouse has named *H. Gibsoni*. By my immediate predecessors and co-botanists at Settle, Wm. Kenyon and T. W. Simmonds, in 1808, it was called *Hypochœris maculata*; but in a list of Settle plants which I possess, by the latter gentleman, a mark of interrogation is affixed to the name, indicating his doubt about it. Following them, I also at first misnamed it *Hypochœris maculata*. In the year 1804 or 1805 I saw the latter growing plentifully at Ompherhead, or Humphrey Head, near Cartmel, but in places too inaccessible to be reached, and therefore had not then an opportunity of comparing it with our Settle plant.

About the year 1810 my specimens of this plant (and other

Hieracia), of which I had many, were submitted to the inspection of Mr. Sowerby; and the name of *Hieracium murorum* var. *foliis maculatis* was then, I believe, affixed to them, instead of *Hypochœris maculata*.

Of the other *Hieracia* now enumerated as growing near Settle, I may again observe that of *H. cerinthoides*, form *anglicum*, or *H. Lawsoni* of Smith, I had collected specimens in several localities near there. It is generally *very villous, shaggy* about the lower part of the stem and root-leaves, and hence might at first sight be mistaken for *H. villosum*, which Mr. Caley stated he had found at Meer Gill, foot of Ingleborough. In company with T. W. Simmonds, I have in vain looked for it in this locality, but afterwards thought I had found it near the summit of that mountain, erroneously, it appears, mistaking for it a form of *H. cerinthoides*.

H. Lawsoni, although not described in Smith's 'Flora Britannica,' or in Withering's fourth edition, is mentioned by Ray, third edition, p. 169, under the name of *H. macrocaulon hirsutum*, or, according to Smith, of *H. leptocaulon hirsutum*, as found at Gordale by Dr. Richardson. Backhouse however refers the former synonym to *H. pallidum*.

The last-named species, *H. pallidum*, is now said to have been found sparingly at Gordale, and to be the same as the *H. oreades* of Fries. I long ago frequently noticed the abundance of *Hieracia* on the rocks at Gordale, but did not then detect this form, described by Backhouse, and enumerated also by Babington.

Of *H. murorum* and *H. cæsium*, although long bearing the name of the former only, I have many specimens, which I collected near Settle in the earlier period of this century.

H. vulgatum (*sylvaticum*) was formerly confounded with *H. murorum*, even by Smith himself, in the 'Flora Britannica,' and hence I did not distinguish it in the neighbourhood of Settle until about the years 1805 to 1813, when I collected and first named it correctly. A form of it, collected in Mill Island, I misnamed formerly *H. Lapeyrousii* (*iricum*).

Since I resided at Settle *H. prenanthoides* has been found, as mentioned in the list, in two places near there, also *H. umbellatum* in one or two places, and *H. crocatum* is said to have been found on Attermire Scars, but I have not yet seen satisfactory specimens from this locality.

NOTICE OF SCARCE IRISH PLANTS.

By ISAAC CARROLL.

1. *Thalictrum alpinum,* L. Moist rocks, and amongst quartz *débris* by a small stream on Ben Lettery, Connemara, August, 1855. This plant was first recorded as a native of Ireland by Dr. Wade, who found it in the above station fifty years ago. *Saxifraga oppositifolia, Asplenium viride,* and a *Hieracium* with villous leaves, occurred in the same station.
2. *Diplotaxis tenuifolia,* DC. Near Westport, Mayo, *C. C. Babington, Esq.* Portmarnock, near Dublin, in considerable plenty, growing with *Calamintha Acinos.* October, 1854, *Thomas Chandler.*
3. *Reseda fruticulosa,* L. Hedge-banks by the Donnybrook road, and on the sandy shore, south side of Howth, near Dublin, introduced.
4. *Melilotus officinalis,* Willd. By the Kilkenny Railway (which passes through brackish marshes), near Waterford, plentiful, *Thomas Chandler.*
5. *Melilotus arvensis,* Willd. By the Railway, at Caher, county Tipperary, in some quantity, *Thomas Wright.*
6. *Trifolium fragiferum,* L. Tramore, Waterford, *Miss S. Grubb.*
7. *Myriophyllum alterniflorum,* DC. Millpond, in county Kilkenny, near Waterford, *T. Chandler.* Mr. C.'s specimens are very much advanced, but the species seems pretty certain.
8. *Asperula cynanchica,* L. Sandy coast at Roundstone, Connemara.
9. *Inula Helenium,* L. This was found by a stream near Clifden, Connemara, along with *Salix pentandra,* L., in August, 1855. Whether these plants were indigenous, or planted in the above station, which was near houses, is doubtful.
10. *Saussurea alpina,* DC. On Brandon Mount, Kerry, very sparingly. August, 1856, *T. Wright. Saxifraga hirta,* Sm., var., *Alchemilla alpina,* and *Poa alpina,* L., also occurred.
11. *Hieracium cerinthoides,* L. (apparently), *Thalictrum minus,* L., *Oxyria reniformis,* Hook., *Saxifraga stellaris,* L., *Salix herbacea,* L., on Mangerton, Kerry.
12. *Lysimachia Nummularia,* L. Ditch-bank near Tramore, Waterford, apparently wild, *Thomas Chandler.*

13. *Centunculus minimus,* L. Coast near Clifden, Connemara. The white-flowered variety of *Menziesia polifolia* grew near the same spot. Some miles further south, *Erica mackaiana,* Bab., was plentiful; and on Urrisbeg Mount I saw *E. mediterranea,* L., *β*. *Eriocaulon* abounds in all the lakes.
14. *Utricularia intermedia,* Hayne. Bogs, Connemara, frequent.
15. *Betonica officinalis,* L. Roadside in county Kilkenny, near Waterford, *Thomas Chandler.*
16. *Polygonum lapathifolium,* L. Abundant in turnip-fields at Riverstown, near Cork. September, 1855.
17. *Betula glutinosa,* Fries. Blarney, Cork. Leaves of the young twigs *conspicuously cordate.*
18. *Salix smithiana,* Willd., var. *rugosa,* Leefe. Freq. near Cork.
19. *Asparagus officinalis,* L. Sand-hills at Tramore, Waterford, June, 1856, *Miss S. Grubb.* This plant was originally discovered in the above station by Dr. C. Smith, 100 years ago, and recorded by him in his 'History of Waterford.' Mr. D. Moore tells me that it was also found in the Barony of Forth, county Wexford, a few years since.
20. *Potamogeton flabellatus,* Bab. (?) A plant which agrees with this species, save that the young leaves and ripe fruit are wanting, is plentiful in brackish marshes at Ballycotton, county Cork.
21. *Ruppia rostellata,* Koch. Near Dublin, *Thomas Chandler.*
22. *Juncus acutus,* L. Near Tramore, *S. Grubb.*
23. *Polystichum Lonchitis, Cystopteris fragilis,* and *Asplenium viride,* Huds. Moist rocks on Mangerton. August, 1856.
24. *Chara crinita,* Wallr. Shanagany bog, near Ballycotton, county Cork, September, 1855, in fresh water occasionally influenced by the tide. A large and beautiful species.

MARITIME AND INLAND TEMPERATURES.

On the Contrast between the Summer Temperatures of an Inland and a Maritime Locality.

The following Tables are intended to illustrate the influence of proximity to the sea in lowering the temperatures of summer. The figures in the left-hand column represent degrees of the centigrade thermometer; those in the two others are obtained by multiplying the excess of the monthly mean above the stated degree by the number of days in the month. The average annual temperature of Scarborough is 49·3° Fahrenheit, that of York 48·2°; and yet it will be observed, that from April to August the York temperatures are considerably the highest, and that it is not until September that those of the seaside regain their normal ascendency. The two places are only some thirty-five miles apart, and yet, with a mean temperature lower by upwards of one degree of Fahrenheit, with reference to annual plants, York is decidedly the warmest locality of the two.

April.

	Scarborough.	York.
1	193	230
2	163	200
3	133	170
4	103	140
5	73	110
6	43	80

May.

	Scarborough.	York.
1	300	356
2	269	325
3	238	294
4	207	263
5	176	232
6	145	201

June.

	Scarborough.	York.
1	393	423
2	363	393
3	333	363
4	303	333
5	273	303
6	243	273

July.

	Scarborough.	York.
1	479	487
2	448	456
3	417	425
4	386	394
5	355	363
6	324	332

August.

	Scarborough.	York.
1	448	470
2	417	439
3	386	408
4	355	377
5	324	346
6	293	315

September.

	Scarborough.	York.
1	390	365
2	360	335
3	330	305
4	300	275
5	270	245
6	240	215

Total for the Six Months.

	Scarborough.	York.
1	2203	2331
2	2020	2148
3	1837	1965
4	1654	1782
5	1471	1599
6	1288	1416

J. G. Baker.

TOUR IN SCOTLAND.

General Summary or Results of our Tour in Scotland.

The impressions or recollections of the scenes already noticed and partly described, the general features of the country, and the aspects of its vegetation, now only remain to be briefly stated.

We had now travelled nearly 400 miles in Scotland; the half of this distance on foot: we had crossed Scotland's most celebrated rivers, the Tweed, the Forth, the Tay, and the Clyde; had paid our respects to the sites of Scotland's ancient renown, Berwick, Edinburgh, Stirling, and Perth. The general results of the whole are now to be deduced and offered to our readers.

On the eastern Borders, from Berwick to Edinburgh, along the coast—for the railways generally select the flattest parts of every country—the landscape is by no means interesting. It is far more fertile—at least after we crossed the Tweed the crops were better than on the southern side of that river,—and the country was not quite so tame, bleak, and cheerless, as it is in Northumberland along the coast; but this is not high praise. The belt of fertile land between the Lammermuir Hills and the coast is well cultivated, and this year (1856) at least gave promise of an ample return to its cultivators. The hills beyond were "in pastures green," as all the hills of the south-west parts of Scotland are, and grazed by both cattle and sheep.

There were seen abundant proofs of human labour, but of the inhabitants and their dwellings little was visible from the railway. The road passes through a rich and well-tilled country; but few villages and no towns were in sight till we reached Dalkeith, near Edinburgh. Here and there a park was observed, well sheltered and ornamented with trees, and now and then there was a narrow ravine, the sides of which were too steep for cultivation; these were fringed with plantations; otherwise, where the land was convertible into tillage fields, few trees were visible. The country upon the whole has rather a bare, uniform, and unpicturesque appearance. On approaching the capital, Arthur's Seat, the Berwick Law, and the hills of Fife give relief to the uniformity of the scene; but these elevations are as bare of everything save grass as the sea-shore, or as the summit of Ben-mac-dui. Craigmiller Woods on the left, though at a distance, give an aspect of richness to the scenery.

The general bare and barren-like appearance which prevails about the metropolis has been already noticed. But the barrenness is only in appearance,—the rich succulent green herbage, though closely cropped, evinces the natural fertility of the soil; but there is a striking absence of trees on the south and east of Edinburgh. The trees on the west of Edinburgh, or on the south side of the Frith, between Leith and Hopeton House, "only serve to remind us," as Dr. Macculloch well said, "of the millions that are wanting." The environs of Edinburgh on the south and east are singularly romantic: the Calton Hill is now pretty well occupied with monumental and other erections, all more or less of an ornamental kind; but Arthur's Seat, the noblest and most picturesque of all Edina's natural features, does not possess a single tree to soften the rugged aspect of the scene. The rocky peak of the hill, and the long mural-like frowning rocks of St. Leonard's, contrast rather singularly with the architectural appearances of the new town of Edinburgh. Trees might be judiciously employed even to enhance the pictorial effect of Arthur's Seat. But if the citizens have not ornamented Arthur's Seat, they have abstained from spoiling it; and this is no mean praise in times when a taste for artificial beauty and landscape ornamentation is so prevalent. From Edinburgh to Stirling, the aspect of both shores of the Forth forms a very favourable contrast with that of the country between Berwick and Edinburgh. Here both wood and water are *the rule;* there they are the exception.

Agriculture and grazing are the prominent occupations of the people on the south of Edinburgh, on the eastern or coast line. From Edinburgh to Stirling the country verging on the shores of the lower part of the Frith appears about equally divided between the noble and opulent classes and the hardy races who toil in quarries and mines. The little towns that skirt the shores are all more or less engaged in the maritime trade of this thriving part of the kingdom, or are supported by the quarrying or mining branches of industry, or by some other of the useful products derived from the adjacent hills.

The Frith of Forth, about half-a-dozen miles from Stirling, contracts within the dimensions of an ordinary-sized river; but what it loses in breadth it gains in length; for the windings or doublings of the stream are so many and extravagant, that the six miles from Alloa to Stirling by land becomes about twenty by water: this is probably an extravagant estimate, yet the windings of the Forth, both above and below Stirling, are very remarkable, and are now celebrated. The vegetation here is about as rich as a fertile soil can produce, and a mild and moist climate can maintain in a state of verdure unknown in less favourable parts.

The fine chain of hills, called the Ochils, on the right, and the rather less elevated range, called the Fintry Hills, on the left of the *voyageur* from Edinburgh to Stirling, with the imposing masses of Highland mountains in front, contribute to render this extensive prospect one of the most beautiful and imposing of Scotland's grand scenes. Distance both softens and "lends enchantment to the view." The tourist has no wish but to push onwards, except it may be the prudent *one* to enjoy the present, and to try to fix its grand features indelibly on his memory.

Stirling is built on a commanding site. The distant view promises much, and the interior of the town does not baulk the visitor's expectation. It still contains much of its ancient aspect and character: the streets are not so wide nor so long as they are in Edinburgh, but the churches, and above all the Castle, vie with the metropolitan edifices, if not in extent, certainly in situation and architecture. The views, as have been already stated, are nearly as fine as from Edinburgh Castle,—we preferred them. The metropolis has a fine view of the sea and of the Pentland Hills. Stirling has a proximate view of the Highland Hills, which are about four times the altitude of the Pentlands.

There is far more variety in the environs of Stirling than in the country about Edinburgh; only in the old town of Edinburgh, the noble High Street is a charming picture by itself,—the houses of Edinburgh enhance even the picturesque interest of its fine situation. But Stirling is well worth a visit, both for its own intrinsic merit and perhaps still more from its being in the vicinity of places justly celebrated in the historical annals of the kingdom. Most visitors will look with greater pleasure on the hills near Dollar, on Abbey Crag, and on the beautiful modern village of Bridge of Allan, than on the fields of the battle of Stirling, the old bridge, Bannockburn, and Sauchie; but *de gustibus nil disputandum,*—the lover of the picturesque, as well as the historical antiquary, will find something to admire in this view, especially if taken from the ramparts, with one of the fine old bombardiers for a *cicerone,*—one who will deliver his historical, pictorial, and traditional lore, with the precision and dignity of a man who fully comprehends his subject, and appreciates its importance.

Stirling is enlarging its bounds,—many houses and handsome villas have been built in it and round about it since the railway system was developed in the south and west of Scotland. This cannot be said of the capital in the summer of 1856; Edinburgh was then stationary. Princes Street, the Railway-stations, the Castle, the Piers of Leith, and the Fish Market were the only places that exhibited any signs of industry or even of vitality. New erections in Edinburgh would appear to be quite superfluous, and in all our walks about it we saw none in progress.

The Bridge of Allan is the most popular watering-place (a strange term) in Scotland. Scotland is celebrated for its Spas (a word used chiefly in Scotland), and the owners of them generally make arrangements for the convenience of the public who come to drink the water. Among the neighbouring nations Scotland is more celebrated for its beautiful natural scenery than for its medicinal springs; and it was with some surprise that we heard of a London patient resorting to the Bridge of Allan as many do *now* to Montpelier, Naples, and the Islands of Madeira.

Stirling, like Edinburgh, is not rich in its botanical productions; and even if it produced more rarities than it does, these would hardly induce a botanist to tarry here who had the intention of visiting the interesting mountains of Breadalbane. At Callander a day or two might be well spent, not only in observing the rare plants in that neighbourhood, but in contrasting the progress of vegetation with that of England on the one hand, and with the upper parts of Perthshire on the other.

Probably there are but few plants about Callander which are not also growing about Killin, but there is a considerable difference in their condition; for example, *Trientalis europæa* and *Trollius europæus* were in fruit when we were at Callander,—no example of either of them was seen in flower. At Killin, quite a week later in the season, both these plants were collected with unfaded blossoms. The botany of Callander, upon the whole, occupies a more prominent position in the surrounding landscape than it does in the estimation of the botanist. The vales, with few exceptions, are well wooded, and the Sycamores, the Maples, and especially the Ashes, are very fine.

The common Elm in Scotland is *Ulmus montana;* the usual English form of this tree, *U. campestris,* we never saw as a hedge-shrub, which it frequently is in England. The Scottish Pine is often a grand and picturesque object where it has ample room for development; but the loveliest of Scotland's trees is the pendulous or weeping Birch. This tree, as an element in the picturesque, is seen to the greatest advantage both in the Trosachs and about Taymouth.

It is said that the Pine is the monarch of the Scottish woods, as the Oak is of the English; yet the Oak is not absent in Scotland; and the Wallace Oak at Ellerslie, the native place of Sir William Wallace, with many other celebrated trees of this kind, is not unworthy of mention among the more famous Oaks of England. Some of the Pines of Scotland are picturesque; and the dark masses of Pine forests and plantations always harmonize well with the sombre hue of Highland scenery. But the Birch is a lovely object, whether seen individually or collectively, and it harmonizes well with the scrubby Oak abounding in the coppices which clothe the abrupt elevations that enclose the Scottish glens.

As a botanical station, Ben Ledi, close to Callander, is despised or ignored by botanists in general. Its name does not once occur in the annals of British plants, numerous though they be. Yet it is not quite barren. A couple of specimens, which would confer celebrity upon any mountain in England, were in the possession of the post-mistress of Callander: *Lastrea Lonchitis* and *Buxbaumia aphylla* are the plants intended.

The beginning of July is rather too early a period for seeing the beauty or for collecting the gems of the Scottish Flora. This time of the year nearly corresponds with midsummer in the south of England, and midsummer is too early for seeing the floral treasures of the mountainous parts of the south and south-west parts of the British Isles. The most experienced of Scottish botanists recommend the summer from the middle of July to the middle of August as the best time for seeing the greatest number of Scottish alpines in flower. Every experienced botanist knows that a district or locality must be visited several times in a season, viz. from March to September inclusive, before a tolerably exact estimate of its vegetation can be formed. Ben Lawers would be rather a formidable ascent in the month of March, when in most seasons it is invested in its robe of spotless snow. But doubtless the enterprising muscologist would then find several rarities to repay him for his toil and suffering.

The beginning of August would however be preferable, on many accounts. The weather is milder than in early spring, the days are longer, and the fairest objects of an alpine flora are in their prime. But we would with due deference recommend a botanical route totally different from that which we ourselves adopted. It is not to be expected that strangers would venture to dictate even to the uninitiated. Yet it is to be wished that young, energetic, and enterprising botanists would strike out a new track for themselves, and not be contented to follow the steps of scientific veterans, and continue to hunt in the same ground that has for so many years been the scenes of the explorations of Don, Graham, Greville, Hooker, Balfour, and their pupils and companions. We should like to explore the hills further west, by Ben More, Ben Ean, and some other of the Argyleshire mountains, besides Ben Cruachan, the only one of these popularly known. It has been stated on good authority, that the number of species decreases as the explorer advances towards the west from the east. This, we have little doubt, is the case in the southern part of the island of Great Britain; and it is probably the same in Scotland, from the Tweed to the Moray Frith. The agrarial annuals, or colonists, as they are mostly denominated in the 'Cybele Britannica,' decrease rather rapidly towards the west, because cultivation decreases. We should like to hear if the perennial herbaceous plants, which do not depend on agriculture for their permanence, are affected by longitude; and if so, what are the probable causes of this decrease.

The rivers of the Highlands have a pretty general uniformity of character. The rocky bed, the eddying pool, and the scrubby or meadowy banks, are common characteristics. Of course they vary in breadth, and in the quantity of water which they contain. But in this even most of the Highland rivers preserve a considerable uniformity. The lakes in which they usually originate have a tendency to preserve this equality of flood. It takes several days' rain to raise perceptibly the surface of Loch Tay, and indeed of all large lochs; and the floods in the Dochart and Lochay, or other feeders of lakes, are some time before they have a perceptible effect on the Tay or the rivers that issue from Highland lochs. The Tay will gradually increase after heavy rains for several days after the floods which flow into its loch have subsided. A river with a long, wide, shingly beach, is a rarity in the Highlands. The channel, if not always quite full, is never reduced to a slender stream in the centre, and where the water-worn pebbles are almost the sole indications that water is there at certain seasons.

But the extent and diversity of the lakes make ample amends for the uniformity of the rivers. Loch Vennachar, the lowest of a chain of lakes of which Loch Katrine is the uppermost, is not very remarkable, either for its extent or the beauty of its environs. Ben Ledi slopes down very gradually to its shores, and the hills on its other or southern side are of no great altitude. Loch Achray is very prettily surrounded by the undulating grounds of the Trosachs, which are ornamented by the Trosachs Inn and a little church and manse, all recent erections, and in a peculiar style, which is not ill adapted to the striking scenery with which it (the lake) is surrounded. Loch Katrine, the queen of Scottish lakes (we saw not a fairer in all fair Scotland), is not to be described here. Poets and painters have exhausted all the resources of their respective arts in vain attempts to transfer some of its beauties into their pages or on to their bits of canvas, but without success. Loch Katrine *must* be seen, and it will bear looking at. The Scots however have an eye for the useful as well as for the picturesque. The blue waters of this fine lake are now on their way to Glasgow, to subserve the common necessities of humanity. "To what vile uses may we turn, Horatio!" We can recommend it on the *crede experto* principle. It may be used without filtration, if the pipes, cisterns, and water-butts be kept clean. Scotland however, and even Perthshire, possess lakes of no mean pretensions, but which have not reached the fame of the scene of 'The Lady of the Lake.' Among these Loch Lubnaig, on the north side of Ben Ledi, deserves honourable mention. It is not a counterpart of Loch Katrine, nor of any Scottish lake whatever. The north shore has a gentle slope, which extends far away to Benvoirlich's head, a pastoral region; the other, or south side, is bounded by the majestic cliffs of Ben Ledi. The lower part of the lake is ornamented by the woods of the celebrated pass of Leny (Lenie), and the upper by the fine forest which separates this district from Strathire. Dr. Macculloch, whose eye for the picturesque was equal to his descriptive pen, says of this lake, "Loch Lubnaig is utterly unlike every Scottish lake, by the dissimilarities of its two boundaries; the one flat and open, the other a solid wall of mountain, formed by the steep and rocky declivities of Ben Ledi." Some of the little Scottish lakes on the summits of the tablelands have an expanse of only a few acres: their extent is not to be measured by miles, but by perches or acres. But the very smallest of them give rise to good-sized burns or rivulets, which enhance the interest of the bleak, widely-extended moors in which the peaks of the higher mountains have their base. These lochs would be termed *tarns* in the north of England. Lochearn is a fine lake, and the upper end (Lochearn Head) affords fine scenes. Like Loch Tay, it is a long, narrow lake; but where we saw it, the banks are finer than those of its rival. Of Loch Tay Dr. Macculloch says that "it scarcely affords one landscape, from Kenmore to near Killin. Nor do I know," he adds, "any place in Scotland which with so much promise produces so much disappointment." Loch Tay, viewed from the summit of Shroine-ach-Lochan, is a fine object in the picture. Its two feeders, the Dochart and the Lochay, are seen to unite and enter it on the spit of land below Killin; and both sides of the lake are for two or three miles fringed with the ancient woods of Finlarig on the left, and by the woods of Kinnell and Auchinore on the right hand.

There is another lake which we visited, and which, both in outline and in scenic character, is quite distinct from any of the aforenamed lakes. The Loch of Menteith, or Monteith, has a roundish outline, and is surrounded by quite flat shores on all sides except on the north-west or Aberfoyle side. This lake is a beautiful sheet of water, plentifully fringed by ancient woods and with two small islands, on the larger of which was a priory, founded by one of the ancient Kings of Scotland. The other islet contains the remains of the castle of the Grahams, Earls of Menteith,—a name detested by Scottish patriots, because borne by the betrayer of one of Scotland's most heroic and disinterested warriors. This race has been long extinct.

The most celebrated passes visited by us were the two at Dunkeld; the western one between Inver and Craigie Barns, and the eastern between Birnam and Caputh Hills. The former is the most celebrated, and deservedly. Another noticeable pass is that of Leny (Lenie), near Callander. Concerning the latter Dr. Macculloch writes: "No one who has seen the pass of Leny (Lenie) will ever forget it; but he who has seen it will forget the rest of Strathire, Kilmahog, and all: the river is broad and majestic, while rapid, and rocky, and fringed with wood suited to the breadth and elevation of the noble precipices of Ben Ledi," etc. (vol. i. p. 149). Strathire is not much altered since the Doctor wrote, and Kilmahog (Kilmaig) is probably in the same neglected or forgotten state. But when the railway is extended to Callander from Stirling, the pass of Leny, Loch Lubnaig, Kilmaig, Strathire, *and all,* may attract some of the attentions and admiration now exclusively lavished on the Trosachs and Loch Katrine.

On our homeward journey from Perth to Carlisle, we passed through one of the most fertile districts in Scotland: Stratherne, which is bounded by the Highland Hills on the north-west, and by the Ochils, or by spurs of them, on the south-east, and which is watered by the Erne, yields in productiveness to few straths of Scotland. Long ere we reached the Border, the darkness prevented our viewing the scenery. The only scenes very conspicuous were the furnaces and fires of the smelting-houses, of which there are many between Glasgow and Carlisle.

The absence in Scotland of the common wayside plants of the south and centre of England, is a feature which arrests the attention of the wayfarer in the northern districts of Britain. There are, even in Surrey and Hants, tracts as dreary and barren as the moors of Rannoch and Breadalbane; and the vegetation is very scanty on such places, both in Devon and Perthshire, and there the difference is not very obvious. But about the streams and near villages the number of plants begins to increase, and then the botanical pedestrian in the North is reminded that he is not in England. In passing through a Scottish village, he fails to see our two common Mallows, *M. sylvestris* and *M. rotundifolia*: *Ballota nigra* and *Lamium album* are also absent. The common climbing hedge-plants of England, both the Bryonies, the white and the black, the large white Convolvulus, the *Sola-*

num Dulcamara (Woody Nightshade), and the more permanent or durable plants, the Honeysuckles and the Clematis, are absent or vary scarce species in Scotland. *Galium Mollugo, Convolvulus arvensis,* and several crucifers, umbellifers, and ranunculaceous plants, are not observable in the corn-fields. Scotland does produce species peculiar to herself and to other similar mountainous or northern regions; but these are not agricultural weeds, nor such annuals as we now term colonists, nor such as are called viatical (wayside species), nor sylvan, nor septal plants. The sylvan and septal species of Scotland are probably the remains of the ancient original forests, through which roads have been formed, and the original vegetation left as a protection to the fields. The Elm, Oak, and Hazel are not so common in the Scottish as in the English hedges; the *Viburnum,* the *Euonymus,* the *Rhamnus,* are not natives of Scotland; and the Ivy is but rarely seen, probably because there are but few or no Elms in the hedgerows. It loves to cling to the Elm; and though not a *parasite,* it helps to kill that from which it derives its support. The Cornel-tree and the White Beam-tree (*Pyrus Aria*) are entirely absent from Scotland. The luxuriance and pictorial beauty of an English unclipt hedge is missed in Scotland. Yet the hedge-trees of England, when planted in Scotland, attain enormous magnitudes for these trees. We observed at Killin a Hawthorn-tree which had reached the dimensions of an ordinary English Elm; and as it was but comparatively a young tree (under 200 years of age), and was quite healthy, it bids fair to rival some of Scotland's largest forest-trees. We have already noticed an enormous specimen of *Acer campestre,* or Field Maple; and many other examples are recorded.

Our impressions of the Scottish atmosphere are not very favourable to its fair fame. We never had more than three fine days in succession, and that only twice. There a *soft** day is the *rule,* and not the *exception.* The weather in England is proverbially changeable. It is not so in the Highlands; but there unhappily the changes are generally from rain to snow, and from snow to hard frost,—or in other words, it rains all summer and snows or freezes all winter. This we have heard; "but Fame, I ween, says many things in sport." *Sed crede experto:* we were there in summer, and can recommend top-coats, *leggings*, if waterproof the better, flannel waistcoats, worsted stockings, thick shoes, and more than two pairs, and the use of a good fire where it is procurable, where it is not, a good allowance of blankets will do quite as well.

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* He who does not know the meaning of "*a soft day,*" must go to Fort William; or he may go to Inverary, which will do as well. This is the usual friendly salutation when it is raining what the Scots denominate an "*even down-pour;*" what the Americans call "*stoning rain;*" what the Cornish very expressively term "*lashing;*" and what is vulgarly denominated "*cats and dogs.*" On the other hand, a *good day* is like angels' visits.

PYRUS DOMESTICA, *Sm.*

In reply to *Beta's* question in the last number of the 'Phytologist' (vol. ii. p. 71), I may say that, while drawing attention to Parkinson's statement of the introduction of *Pyrus domestica* into this country, I wished botanists to form their own conclusions as to how far it applied to the Wyre Forest tree. I have never had the pleasure of visiting Wyre Forest, and therefore, perhaps, am hardly justified in expressing a decided opinion on the age of the tree in question; but I cannot help thinking that it is greatly over-estimated by some writers. It must not be forgotten that the tree is in a state of *premature* decay, owing to the barbarous treatment it has received at the ruthless hands of curiosity-hunters. Bearing this in mind, and taking the specimens mentioned in the 'Phytologist,' N. S., vol. i. p. 197, as guides, it seems not unreasonable to conclude that the age of the Wyre Forest tree does not exceed two hundred years. If one of these trees, whose dimensions are given, and whose age is estimated at two hundred years, may be taken as a fair specimen of the dimensions attained by the species in a couple of centuries, our Wyre Forest specimen has never approached the size of a full-grown tree of its kind. For while the tree alluded to possessed a trunk of three feet four inches in diameter, that in Wyre Forest had attained to only one foot nine inches. On the whole, therefore, I cannot see anything in what has been published respecting this remarkable tree, to negative the supposition that it has descended from one of those introduced by John Tradescant. *Beta* has, inadvertently, referred my quotation of its introduction by Tradescant to Parkinson's 'Theatre of Plants;'—it occurs in another book by the same writer, which seems much less known to botanists, viz. the 'Paradisus Terrestris.' This work contains descriptions of, and directions for rearing, the flowers, vegetables, and fruits cultivated in gardens at the time of its publication, and is a very curious record of the practice of horticulture in those days.

The Service-tree is said (Loudon's 'Encyclopædia of Plants') to be still cultivated for its fruit in some parts of France, and near Genoa. Is it ever planted in English gardens nowadays? Selby, in his 'British Forest Trees,' says that it is difficult to propagate in this country "from its fastidiousness as to soil and situation."

ROBERT C. DOUGLAS.

March 10th, 1857.

Reviews.

Index Filicum: a Synopsis, with Characters of the Genera, and an Enumeration of the Species of Ferns, with Synonyms, References, etc. By THOMAS MOORE, F.L.S., F.H.S., Author of the 'Handbook of British Ferns,' etc., etc. London: Pamplin.

In this comprehensive Index to all that has ever been written about Ferns, the learned author first defines the alliance *Filicales,* and in succession the Orders POLYPODIACEÆ (true Ferns), MARATTIACEÆ, OPHIOGLOSSACEÆ, the alliance *Lycopodales,* and the Orders LYCOPODIACEÆ and MARSILEACEÆ. The tribes and sections are defined under their respective Orders. The generic descriptions, which are both ample and perspicuous, are accompanied with the synonyms and examples of the genera, and with references to works wherein the species are pictorially or otherwise described. A sufficient account of the nature and scope of the publication may be obtained from the advertisement prefixed to the work, of which the following is given as a sample: —"The attempt now made to produce a catalogue of Ferns, arranged on some uniform plan, of convenient bulk and moderate price, as complete withal as a diligent research in the publications accessible to him has enabled the author to make it, has sprung from the acknowledged want of some recent enumeration of the species of Ferns, embodying the modern principles of classification. Such an enumeration required, in order to render it fully intelligible, that a synopsis of the genera of Ferns should be prefixed. It seemed also necessary to its utility, that the Catalogue itself should indicate, under the adopted species, the following particulars, viz. (1) references to the most useful general publications, as well as to those detached Memoirs in which they may be classified or described; (2) an enumeration of their synonyms; (3) references to Figures; and (4) a summary of their known habitats sufficient to illustrate their geographical range."

Of late years this order of plants has been more investigated than the vegetable kingdom in general. Some of our most eminent systematic and practical botanists have laboured both at the classification and the description of Ferns. The growing taste for elegant forms has been met by numerous publications, which, in all, would constitute no small portion of a botanical library. The scheme of publishing an *index* to the great mass of recent and modern as well as ancient information on this popular subject, is certainly a good one, and will doubtless be approved and encouraged by all lovers of the most elegant of nature's productions. The well-won reputation of the author is an ample guarantee that the plan will be carefully and successfully carried out in the execution of the work.

Monograph of the GENUS ABROTHALLUS (De Notaris and Tulasne *emend.*). *By* W. LAUDER LINDSAY, M.D., Perth.

The author of this elaborate paper premises that the above genus has long been known, though under a variety of designations (names), although the true structure of the species and their proper place in the series were quite misunderstood till the recent investigations of De Notaris in Italy and Tulasne in France. Both of these eminent lichenologists have published memoirs on this subject; and the object of Dr. Lindsay in his communication is to correct some of their errors and to supply their defects. In stating the untenable views of Schærer and others, Dr. Lindsay informs us that "It has been too much the custom lazily and ignorantly to refer minute, black, point-like, or spot-like parasitic Lichens to the great family of the *Fungi;* but I feel assured that many species of *Sphæria, Dothidea, Peziza,* and other *Fungi,* presently so called, which are parasitic on the thallus of various familiar Lichens, will ultimately be found to belong themselves to the ranks of the Lichens. I attribute however no blame to my predecessors for having erred in regard to the structure and place in classification of these minute organisms. Nay, I do not see how such errors could have been avoided; for the parasitic Lichens to which I refer could not have been properly studied prior to the introduction of the microscope, etc."

Our author reduces Tulasne's five species of *Abrothallus* to two, discarding *A. inquinans,* and combining *A. Welwitzschii* and *A. microspermus* under the name *A. Smithii,* which forms three varieties or sub-species, *ater, pulverulentus,* and *microspermus:* the species *A. oxysporus* he retains.

The genus is well illustrated by two coloured plates, containing highly magnified figures of these species, and of portions of the Lichens on which they grow.

Dr. Lindsay well deserves the encouragement and commendation of all the friends of botanical science, for his disinterested labours in the cause of *progress.* Art is largely indebted to him for his many communications on the colorific properties of *Lichens,* a family of plants which he has taken under his protection and patronage. But for the sake of the many who do not understand the magniloquent terms of modern science, we wish he would condescend to manifest a little more sympathy for people not quite so learned as he himself is. As it is possible to write learnedly without learned language, so it is not impossible to write scientifically without the use of such unusual words as *differentiation, ostiole, maturescence, anamorphoses,* and the like, which convey no idea that is not expressible by *distinction* or *distinctness, pore, ripeness* or *maturity, malformation,* etc., and similar less *neologistic-like* terms. Dr. Lindsay cannot believe, nor imagine that his readers entertain, the *omne ignotum pro magnifico* notion, or that people admire only what they do not understand.

BOTANICAL NOTES, NOTICES, AND QUERIES.

PLANTS GROWING ON AND NEAR BLACKHEATH. *By* J. S. M.

Torilis nodosa.—On the grassy slope above Hyde Vale.

Trifolium striatum.—Very abundantly along the road crossing the heath diagonally towards Morden College, and the prolongation of that road into Blackheath Park (June, 1856).

Trifolium (or *Trigonella*) *ornithopodioides.*—Very scantily by the same road, in front of the Paragon, in 1853. Not seen since; but Blackheath being one of the recorded stations of this small inconspicuous plant, it probably still exists on some other part of the heath.

Tragopogon porrifolius.—In some abundance in a corner of a meadow by the prolongation (already mentioned) of the diagonal road into Blackheath Park. The plant has been completely established in the locality for some years past. There is nothing to show its origin; but it is to be feared that the progress of building will shortly root it out.

Senecio viscosus.—A weed on the glebe-land at Lee, in profusion (1851). The land is now covered with houses, but the plant has survived this peril, being still found in considerable quantity by the roadside.

RARE PLANTS OF HERTS.

I have an unpublished chapter of additions to the 'Flora Hertfordiensis,' of my own making, but this is not in a tangible shape for publication just now. Indeed, although it shall be for the 'Phytologist' eventually, I should like to send it to the reverend author of the 'Herts Flora' first.

You doubtless know this neighbourhood. We have several *interesting* plants, but very few near at hand, that Babington ('Manual,' 4th edit.) would mark as "*rare.*" The Valley of the Lee, between here and Brocket Hall Park, yields *Menyanthes*, *Orchis latifolia*, the lovely *Parnassia* by thousands, and several *scarce* Hertfordshire plants; but I do not recollect a single kind more valuable to a botanist than *Dianthus Armeria*, which occurs here. *Galanthus* is abundantly *wild*, if not *indigenous* in the neighbourhood. In the famed Devil's Dyke (an earthwork of the contests before the Norman conquest) *Polystichum angulare* abounds; and on No-Man's-Land Common *Gentiana campestris* occurs. We are very scant of grassy fields, but wherever we have pasture, *there* old Abbott's favourite, the exquisite *Alchemilla vulgaris*, appears. On the nearest *chalk*, *Iberis amara* is often abundant; but I do not think that we have anything more likely to be interesting to collectors than such generally distributed kinds as those I enumerate. E. E.

DROSERA INTERMEDIA.

From 'Die Botanische Zeitung,' 17th October, 1856.

In this species, as well as in *D. rotundifolia*, the flower-stalk is not axillary, but terminal, as the author of this paper, Th. Irmisch, had previously suspected. The leaf-stalk, in both, springs from the axil of the uppermost leaf, which consequently subtends the base of the stalk (scape). Branching examples of the scape (flower-stalk) of the British specimens of *Drosera* are probably not very unfrequent; and it would be worth while to direct our attention to these states. The caulescent form of *D. intermedia* figured and described in the February number of the 'Phytologist' has, it appears, been overlooked, or, if observed, was not thought worthy of special notice. Such facts, trivial though they may be deemed, will always be welcome to a place in our pages, and, it is believed, will be acceptable to the majority of our readers. E.

CARDAMINE ACAULIS.

Character of a new Cardamine, in Germany, discovered and described by Dr. Otto Berg.

The learned discoverer of this new species proposes the following specific name and character:—

"*Cardamine acaulis*, Bg.; perennis, acaulis; foliis omnibus radicalibus, basi exauriculatis, pinnatipartitis, novellis hispidis, demum plus minusve glabris; foliolis petiolulatis, rhombeo-subrotundis, repando-dentatis, terminali majore; scapo radicali simplici, filiformi, glabro, unifloro, foliis vix longiore; petalis calyce triplo, staminibus duplo longioribus, obcordatis; stylo latitudinem siliquæ superante; stigmate capitato.

"Habitat in graminosis humidiusculis umbrosis. Floret Aprili, Majo. Prope Berolinum."

This description may be thus Englished:—

Stemless Cardamine. Root perennial; leaves all radical, pinnate, at first hairy, finally more or less smooth; leaflets stalked, rhomboid-roundish, with spreading teeth, upper leaflet the largest; scape (flower-stalk) filiform, simple, one-flowered, scarcely longer than the leaves; petals three times as long as the sepals and twice as long as the stamens, obcordate; fruit tipt with the style; stigma capitate.

In moist, grassy, and shady places. April, May. Near Berlin.

This plant is distinct from all our British species of this genus by the one-flowered scape. It approaches *C. hirsuta*, from which it is very readily distinguished by its perennial root, as well as by its single flower.

BOTANICA.

NATIVE COUNTRY OF DATURA STRAMONIUM.

The home of this now widely-distributed plant is probably the shores of the Caspian Sea, or in the countries adjacent thereto. It is not an Indian native plant, and it is very doubtful if it was known in Europe during the period of the dominion of Rome in the West. It appears to have gained a footing in Europe between the decadence of the Roman Empire and the discovery of America.—*From Die Botanische Zeitung.*

ILLUSTRATIONS OF THE NATURAL ORDERS.

A portion (Heft) of Schnitzlein's elaborate and beautiful work on the Natural Orders, viz. 'Iconographia Familiarum Regni Vegetabilis,' appeared in the end of last year (1856). The part just published contains illustrations of the Orders *Caprifoliaceæ*, *Jasmineæ*, *Verbenaceæ*, *Globularieæ*, *Asperifolieæ*, etc. To this brief notice the editor of the 'Botanische Zeitung' expresses a wish, which is general, that the work may be expedited; for, he says, it is now fourteen years since its commencement: a rather long period in this age, wherein the work that formerly occupied a century is now finished in a decade.—*Botanische Zeitung.*

MEYER'S HISTORY OF BOTANY.

A third volume of this important contribution to our knowledge of ancient and mediæval botany, was published before the close of the year 1856. Meyer's elaborate work has already been mentioned in the pages of the 'Phytologist;' and the following brief account of the contents of the volume lately published will, it is hoped, be not unacceptable to our readers.

The ninth book of the work, and the first of the third volume, contains the history of botany among the ancient nations of the East; for example, among the Indians, the Persians, and the Nabathæans (Arabians?). The history of botany among the Arabians is brought down to the fourteenth century, and this is the subject of the tenth book. The eleventh contains an account of the revival of science in Europe during the age of Charles the Great (Charlemagne), Albertus Magnus, from 800 to 1250, including the authors and founders of the Salernian school (Schola Salernitana), describing in this part what was known about plants on this side of the Alps in the twelfth century. A table of contents, and some additions and emendations, finish both the book and the volume.

All lovers of botany will join in the wish of the reviewer, from which this notice is borrowed, that life, strength, encouragement, friendly assistance, and money, may not fail the author, but that he may see his elaborate work brought to a conclusion. The difficulty of the undertaking is great, and the labour herculean. It is a subject of great interest to scientific men in general. It is not a history merely of a science, but of human progress. The history of botany has been neglected since the time of Sprengel, nearly half a century since. And Sprengel's work will appear as a meagre performance by the side of that of the learned Professor of Königsberg.

BOOK OF THE PLANT-WORLD; *or, a Botanical Journey round the World.* '*Versuch einer Kosmischen Botanik.*' *By* DR. CARL MÜLLER.

This ideal botanic journey treats of plants not as a distinct or independent portion of creation, but as connected with the inanimate class of beings on the one hand, and with the animate and sentient on the other.

The work is divided into four parts, viz., *first*, the vegetable kingdom in its universality (Pflanzenstaat); *second*, the history of the vegetable kingdom (Geschichte der Pflanzenwelt); *third*, the aspects of vegetation (Physiognomik der Gewächse); *fourth*, the distribution of plants (Pflanzenverbreitung).

The first book treats specially on the relations of plants, viz. the relations of plants to each other, as common plants; generic and ordinal relationships; relations of plants to soil, etc.; relations of form; climatic relations, naturalization, etc.

The second book treats on the geological epochs in general,—as the transition period, the carboniferous period, the *permian* period (formation of the new red sandstone), the Jura, chalk, tertiary, and diluvial periods; and on the surface of the earth as it now exists.

The third book treats on the various sensuous perceptions resulting from the aspect of plants, and in nineteen chapters contains sketchy outlines of the forms of the Palms, Orchids, Lilies, Grasses, Ferns, Mosses, Fungi, etc. etc.

The fourth book contains descriptions of the native homes of plants (Pflanzen-regionen), the zones of plants, etc., and the connection between the animal and the vegetable kingdoms. The second volume is promised in the course of the current year.

The author of the article from which the above is derived might have given a bit of useful information to the public, viz. by stating whether or no the work is to be completed in the second volume. We heartily wish success to the undertaking, and believe that such a work, if confined within due bounds, and made more interesting than works on the distribution of plants generally are, would be very acceptable to some readers of the 'Phytologist.'

Common Plants.

Sir,—Should the Rev. H. A. Stowell's classification of "Common Plants" be acted on, I should beg to suggest a Class E, to contain plants decidedly rare, or such as are only found in twenty-five, or less, per cent. in any given district. W. Dickinson.

Synopsis Floræ Germanicæ et Helveticæ, exhibens Stirpes, etc.

A third edition of this celebrated work has recently been issued, seven years after the death of its eminent author (Professor Koch). It is reported in the 'Botanische Zeitung' to be a *not* altogether *unaltered* impression of the former edition, for the type is improved, and the page is somewhat dilated; but other additions or improvements there are, the "reviewer saith, none." From this it would appear, that though botany may be advancing, the progress of Koch's 'Synopsis' is limited to an enlargement of the page and to the use of a larger type.

Miss E. Hodgson, of Ulverstone, wishes that her name may be added to the list of botanists who wish to exchange specimens of British plants. We regret that this notice has been unaccountably delayed.

Communications have been received from

J. Griffiths; T. M.; E. E.; J. G.; E. P. Wright; T. J. Church; J. Gifford; Rev. R. C. Douglas; J. Barton; S. W.; George Lawson; Rev. W. M. Hind; G. E. S.

BOOKS RECEIVED FOR REVIEW.

Moore's Index Filicum; Part the First.
Lawson's Lectures on Botany.
Childs' British Botanist's Field Book.

DINGLE AND ITS FLORA.

By the Rev. W. M. Hind.

In visiting Dingle I had an object beyond the mere gratification of my taste as a tourist or botanist,—I wished to ascertain, by personal inquiry, the state of the Protestant Missions in that neighbourhood. Were the 'Phytologist' the fitting vehicle for communicating the satisfactory results of my investigations to the world, they should be included in this paper. While glad to bear my feeble testimony to the moral and social elevation arising from the labours of the Irish Society, I feel that I have no right to press into its service the pages of a journal devoted to the cultivation of botanical science and discovery.

Dingle is situated near to the south-west extremity of a promontory of the county of Kerry, and is the most westerly town of the British Isles. Formerly it enjoyed a considerable trade, but is now decayed, and is dependent on its fisheries and agriculture. The scenery around and along the whole route from Tralee, the county town, about twenty-five miles distant, has a wild grandeur,—having all the advantages of lofty mountain, bold coast, and magnificent sea. During my short stay, from June 28th to July 4th, 1856, I was only able to investigate to a very slight extent the botanical products of the neighbourhood.

Near the town I observed *Erodium moschatum*, Sm., *Veronica grandiflora*, at first sight taken for *V. Buxbaumii;* also, in great profusion and of remarkably vigorous growth, *Digitalis purpurea*, L., one single specimen having white flowers; *Scolopendrium vulgare*, Sym, var. *cristatum; Osmunda regalis*, L., and the other ferns of generally ordinary occurrence. On old walls I found *Cotyledon Umbilicus*, L., and *Glyceria loliacea*. On the headlands and along the coast were growing very plentifully *Cochlearia danica*, L., *Crithmum maritimum*, L., *Jasione montana*, L., of unusually luxuriant habit and large flowers, *Erythræa latifolia*, Sm., *Anagallis tenella*, L., *Beta maritima*, L., and *Asplenium marinum*, L. On the beach, *Zostera marina*, L., was thrown up by the tide, and also some vascula of *Utricularia intermedia*, Hayne; from which I infer that the plant must have grown in the vicinity, and have been brought down to the bay by some stream, and in the end thrown on the beach. The weather was too calm during my stay to reward my search for *Algæ*. There was a profusion of the larger *Melanospermeæ*, such as *Fuci*, *Laminariæ*, *Chordæ*, *Himanthaliæ*: more sparingly *Cystoseira fibrosa*, Ag., *Desmarestia aculeata*, Lamour., *Asperococcus?* There was a fair quantity of some of the more common *Rhodospermeæ*, of the genera *Delesseria*, *Chondrus*, *Plocamium*, *Laurencia*, *Polysiphonia*, and *Ceramium*. Of the *Chlorospermeæ* I found nothing, save what may be gathered on almost any rocky coast.

The mountain district to the north of Dingle will yield the most abundant harvest to the botanist. To this tract I devoted two days: on the first of these days I intended to explore Connor Hill, one of the recorded localities for *Saxifraga hirsuta*, L.; but being without a guide, I, by mistake, ascended a mountain lying to the eastward, and so failed in obtaining any specimens of the above-named plant. The course I pursued was along the edge of a mountain-stream, well furnished with *Scirpus fluitans*, L. In this day's ramble I gathered or observed *Viola palustris*, L., but not in flower, *Saxifraga umbrosa*, L., *S. stellaris*, L., *Orchis latifolia*, L., *Habenaria bifolia*, Br., *Myrica Gale*, L., *Juncus supinus*, Mœnch, *Eriophorum vaginatum*, L., and *angustifolium*, Rh., *Carex pilulifera*, L., *Aira flexuosa*, L., *C. caryophyllea*, L., *C. præcox*, L., *Triodia decumbens*, Beauv., *Koeleria cristata*, Pers., *Molinia cærulea*, Mœnch, *Festuca bromoides*, L., *F. vivipara*, Sm., *Lastrea glandulosa*, Newm., and *L. fœnisecii*, Wats. Had there been less to reward my toil in the vegetable productions, the view from the summit of the mountain had been in itself a sufficient recompense. To the north lay the beautiful expanses of Tralee and Brandon Bays, and to the south the still more magnificent Dingle Bay, with Valentia Island in the distance. The lofty Brandon, with its gloomy valley of Arra Glyn, a noble example of mountain scenery, filled up the picture to the west. But Brandon, though so commanding at a distance, has beauties of its own to repay those who ascend its lofty summit. Its height is 3126 feet, being the highest but one of the Irish mountains, and it is of comparatively easy ascent, free from risk, and requires only stout limbs and a persevering will. The view from the summit is indescribably magnificent. In what I may call the more distant foreground, looking to the south and west, lay the extremity of the Dingle promontory, indented by a succession of bays, and presenting a varied succession of bold and commanding headlands. Still more distant lay the Blasquet Islands, with their lofty and jagged cliffs, rising sheer from the bosom of the broad Atlantic, which for many a league stretched out as far as the eye could reach,—its white-crested waves chasing the laughing sunbeams which glanced on the waters. This picture had a breadth of light and shade thrown on it by the light hazy clouds which flitted between the spectator and the distant prospect, and gave a finish to the whole which would defy the artist's power to imitate. To the north-east another and scarcely less majestic prospect lay before me,—the gloomy valley of Arra Glyn, wild and desolate-looking to an extreme. It seemed as if the mountain had been halfway cut through from its very base, and that the work had stopped short, leaving its sides as rugged precipices, and its floor a pavement of stone, on which nothing claiming kindred with herbage could find a home, and which here and there was hollowed into dark-looking pools.

But I must not forget that my special business is with the Flora of Brandon, which is not despicable. The base of the mountain is clothed with *Erica cinerea* and *Tetralix* (this latter I collected with white flowers), and the usual Grasses and Sedges which affect moorlands. Along with these were *Cladonia uncialis*, *C. turgida*, *C. rangiferina*, and *C. furcata*, and several *Scyphophori*. Still higher up, and beyond the heaths, *Lecidea geographica* appeared, along with other lichens of the same genus,—*Lecanora parella*, and others. About this range I collected a fine specimen of *Polygala*, with very bright deep-blue flowers; perhaps it may be the same plant as is found on Ben Bulben, Sligo. A little higher, *Saxifraga umbrosa*, L., with its varieties *punctata* and *serratifolia*, appear; also *S. Geum*, L., *S. stellaris*, L., and not improbably *S. elegans* and *S. hirsuta*. In the same region also are *Veronica officinalis*, L., and *Pinguicula vulgaris*, L. Though likely to be found in the same neighbourhood, I cannot certainly say that I observed a single plant of *P. grandiflora*, L. Near the summit, *Armeria pubescens*, Link, becomes plentiful, and at the summit *Saxifraga hirta*, Don, and, if really distinct, *S. affinis*, Don. These latter plants cover over a small space, a few yards' square, where some small erection appears to have been at one time; and that which I take to be *S. affinis* is far the most part confined to the foundations of the old walls; the other is more generally diffused. Could the difference of habitat sufficiently account for the difference in appearance, which seems to be principally confined to a more compact habit of growth, shorter flower-scapes, fewer flowers, and narrower divisions of the calyx? Proceeding from the summit along the ridge overlooking Arra Glyn, I found *Sedum Rhodiola*, DC., *Saxifraga hirta*, and, doubtfully, *S. cæspitosa*, L.?, *Oxyria reniformis*, Hook., and *Cystopteris dentata*, Hook., *Splachnum ampullaceum*, and a few other Mosses. On my descent I followed the course of a stream running towards the south-west, often having to clamber over great boulders. The large-leaved *Saxifrages* were in great profusion and the Ferns very handsome, though for the most part of the more common species. *Hymenophyllum Wilsoni*, Hook., was in considerable abundance. I had hoped to fall in with *Trichomanes radicans*, Sw., which I learned was still to be found in the neighbourhood of Dingle, but had not the good fortune to meet with it. I was also informed by a resident surgeon that *Atropa Belladonna*, L., grows near Lord Ventry's residence, but not being in want of specimens, did not go in quest of it. *Tamarix anglica* was plentiful, but as a cultivated shrub. The climate of Dingle is very mild, a proof of which may be had in the case of the common Fuchsia, which attains to the size of a large shrub of fifteen feet or upwards, with a head not less across, and a stem of from two to three inches diameter.

FAVERSHAM PLANTS.

Plantæ rariores Favershamienses; communicated by the
REV. H. A. STOWELL.

[Our readers are referred to an interesting article, by the same author, on the Flora of Faversham in the 'Phytologist' for 1855–6, p. 249.]

Prunus Padus. In all our woods; plentiful.

Potentilla argentea. In the gravel-pit, Cockset Wood. Sandbanks Wood.

Potentilla nemoralis reptans. Syndale and Perry Woods.

Rubus Idæus. Woods about Lees Court.

Rosa rubiginosa. By the roadside through Bysing Wood. Thickets about Belmont and Lees Court.

Rosa arvensis. In woods; frequent.

Poterium Sanguisorba. On chalky banks, and in woods on the chalk; frequent.

Mespilus germanica. In Hernhill Wood: only two bushes found.

Pyrus Malus. Bysing Wood; but very sparingly.

Pyrus Aria. Syndale, Cockset, and Badging Woods. Woods about Belmont and Lees Court.

Circæa lutetiana. Swampy ground below Bysing Wood, towards Luddenham Vicarage. Woods near Lees Court.

Hippuris vulgaris. Oare Mill-pond. Thorn Creek.

Callitriche pedunculata. Dykes between Uplees and Teynham.

Callitriche autumnalis. Ham and Graveney Marshes.

Bryonia dioica. Ham Road. Porter's Lane. Roads in Luddenham and Teynham.

Ribes Grossularia. Hedges about Lees Court and Belmont.

Sedum Telephium. Near the cross roads in Bysing Wood.

Sedum reflexum. On the Abbey walls. Old walls at Rodmersham and Boughton.

Sempervivum tectorum. On roofs and walls about the town, and at Hernhill; but not frequent.

Saxifraga tridactylites. Walls of Faversham, Goodnestone, and Rodmersham churchyard.

Adoxa moschatellina. Moist banks about Bysing Wood. On Beacon Hill and near Brogdale Farm.

Eryngium maritimum. On the beach at Seasalter.

Apium graveolens. In the marsh dykes; frequent.

Petroselinum sativum. On the west wall of Faversham Churchyard; recorded there since 1777.

Sium latifolium. Marsh dykes; more frequent than the next.

Sium angustifolium. Davington Osiers. Ham Marshes. Graveney Marshes.

Bupleurum tenuissimum. By the side of Faversham Creek, between the last house and the bridge.

Œnanthe Phellandrium. Dyke by the road from Graveney to Seasalter beach.

Sison Amomum. Homestall and Newnham Roads. Porter's Lane. Gravel-pit in Cockset Wood.

Peucedanum officinale. On the sea-wall between the bridge and Thorn Creek.

Viscum album. In orchards at Graveney, Selling, and Throwley. Once found on the Oak in Perry Wood. On the splendid old Thorns in Eastwell Park very abundant.

Sambucus Ebulus. In the hedge between Preston Street and the Church, and by the path from the London Road to the same place.

Viburnum Opulus. Syndale and Hemhill Woods. Dully Wood.

Viburnum Lantana. More frequent than the last in our woods and hedges.

Galium cruciatum. Badging Wood. Roadsides near Belmont, and about Badlesmere.

Galium tricorne. Chalky cornfields on Badging Downs, adjoining Cockset Wood, and near Lees Court.

Asperula odorata. Woods about Lees Court and Throwley.

Asperula Cynanchica. Woods near Belmont. Lees Court Park.

Centranthus ruber. Walls at Davington Priory and Boughton Street. In an old chalk-pit near Rodmersham.

Valeriana dioica. Davington Osiers.

Valeriana officinalis. Davington Osiers. Graveney; rare.

Fedia olitoria. On the walls of Davington Priory. On the beach at Seasalter.

Fedia dentata. Cornfields on the Newnham Road, about Porter's Lane and Badging Wood, and near Selling; abundant.

Dipsacus pilosus. Near the old gravel-pit between Porter's Lane and Badging Wood; rare. (Recorded in the same habitat, 1777.)

Scabiosa succisa. Syndale, Cockset, Sandbanks, and Perry Woods; not very general.

Scabiosa columbaria. Takes the place of the last on the chalk, both in woods and on banks.

Tragopogon pratensis. On the sea-wall beside Faversham Creek. Near Scurtington Farm.

Tragopogon minor. Beside the lane from Ovenscourt to the Chilham Road.

Helminthia echioides. Hedge-banks about Luddenham and Stone; frequent. Bottom of Bysing Wood, towards Luddenham Vicarage.

Picris hieracioides. Larch plantation by the steep steps on the path from Ovenscourt to Selling.

Lactuca muralis. On the steep bank in Bysing Wood. By the roadside from Faversham to Luddenham, after crossing the hill. About the gravel-pits in Badging Wood.

Crepis biennis. On every chalky bank and roadside; particularly abundant in the lane from Ovenscourt to the Chilham Road.

Hieracium murorum. Lees Court Park.

Taraxacum palustre. Ham Marshes. Wet pasture below 'The Pulpit.' Perry Wood.

Cichorium Intybus. Roadsides; very frequent.

Carduus nutans. Badging, Syndale, Cockset, Sandbanks, and Put Woods.

Carduus acanthoides. On gravel. Davington Hill. Cockset Wood. Hemhill.

Carduus tenuiflorus. On the sea-walls about Ham and Graveney. On the beach at Seasalter.

Carduus marianus. Between Graveney and Seasalter.

Carduus acaulis. Syndale Park. Lees Court. Belmont.

Onopordum acanthium. Syndale, Cockset, and Sandbanks Woods.

Carlina vulgaris. Between Whitehill and Belmont. Lees Court Park.

Centaurea nigra. With white flowers. In the lane from Luddenham Street to Moor Farm.

Centaurea Cyanus. Like *Lychnis Githago,* not frequent in our cornfields: almost confined to two or three in the neighbourhood of Porter's Lane.

Centaurea Scabiosa. On the chalk as about Badging Wood, Lees Court, Ovenscourt, Belmont, etc.

Eupatorium cannabinum. Davington Osiers. Thicket behind Sandbanks Wood.

Artemisia maritima. Margins of the creeks; plentiful.

Gnaphalium sylvaticum. Bysing, Syndale, Sandbanks, and Hemhill Woods.

Gnaphalium uliginosum. Bysing Wood.

Tussilago Farfara. Behind the Powder Mills near Bysing Wood. About Hemhill.

Erigeron acris. On the walls of Faversham Churchyard. In the gravel-pit, Cockset Wood. Woods on the left of the Office-road to Belmont. Roadside beyond Beacon Hill.

Aster Tripolium. Margins of the creeks; abundant.

Senecio sylvaticus. On the gravel, Bysing, Syndale, and Cockset Woods.

Senecio viscosus. Syndale Wood. Lees Court Park. Woods at Belmont.

Senecio erucæfolius. On chalk. About Whitehill, Belmont, and Lees Court.

Senecio aquaticus. Ham, Clapgate, Luddenham, and Graveney marshes.

Inula Conyza. Gravel-pit, Cockset Wood. Borders of Sandbanks Wood. Woods near Belmont.

Pulicaria dysenterica. Ditches and moist places about Bysing Wood, Luddenham, and Stone.

Chrysanthemum segetum. Very uncommon in this neighbourhood; only met with twice,—once between Faversham Church and Clapgate Lane, and again in a field near Luddenham Church.

Pyrethrum Parthenium. With double flowers. In Porter's Lane.

Matricaria Chamomilla. Cornfields about Luddenham and Davington; but not frequent.

Anthemis arvensis. King's Field. Fields between Luddenham and Oare; sparingly.

Anthemis Cotula. King's Field. Fields about Davington and Luddenham, and about Selling.

Campanula Trachelium. Hedges and woods; frequent.

Specularia hybrida. Chalky fields on Badging Downs, and between Ovenscourt and Selling Church.

Ligustrum vulgare. In the gravel-pit, Cockset Wood. In woods and hedges on the chalk; frequent.

Vinca minor. Near Copton Cottage. Borders of Cade's Wood. Perry Wood, below 'the Pulpit.'

Gentiana amarella. About Belmont and Lees Court, on banks and in the woods.

Erythræa Centaurium. Occurs with white flowers in Syndale Wood.

Chlora perfoliata. Woods about Belmont; particularly fine to the left of the Office-road.

Menyanthes trifoliata. In a stream by the Powder Mills near Bysing Wood; very rare.

Convolvulus sepium. Ham Road, etc. Particularly abundant about Luddenham, where I noticed a bean-field in the summer of 1854, almost buried in its lovely white blossoms.

Cuscuta Trifolii. In a clover-field by the path from Badging Wood towards Belmont; very rare.

Hyoscyamus niger. On the beach at Seasalter.

Verbascum Thapsus. Gravel-pit in Cockset Wood. Clapgate marshes. Fields near Belmont.

Verbascum Lychnitis. Near a small chalk-pit on the right-hand side of the Office-road to Belmont; very rare.

Veronica montana. Bysing Wood, and the little wood near the Four Oaks.

Veronica Buxbaumii. Clover-fields between Stone Farm and Elverton; between Westwood and Mr. Apsley's; between Petham and Hardres. Cornfield beyond Badging Wood.

Rhinanthus Crista-galli. Bysing Wood; rarely. Near Selling Court. Near Hemhill Church.

Pedicularis sylvatica. Bysing, Hemhill, and Perry Woods; but not frequent.

Scrophularia aquatica. Marsh dykes. Ditches about Luddenham. Davington Osiers.

Digitalis purpurea. Syndale and Perry Woods.

Antirrhinum majus. Abbey walls, and walls about Davington.

Linaria purpurea. On a wall behind Preston Street.

Linaria Cymbalaria. On a wall at the bottom of Oare Street. On a wall in Luddenham, by the cottage before you come to Moor Farm.

Linaria spuria. Cornfields with *L. Elatine;* but not so frequent. Most common about Westwood and Selling.

Linaria minor. Cornfields on Badging Down, and beyond Cockset Wood.

Verbena officinalis. Roadsides; frequent. Luddenham and Whitehill roads. Porter's Lane, etc.

Salvia verbenaca. Walls at Davington Priory and Rodmersham; rarely.

Lycopus europæus. Dykes in Ham and Graveney marshes; but sparingly.

Mentha sylvestris. By the side of the brook below Whitehill. By a stream in Hemhill Wood; rare.

Mentha sativa. Swampy ground below Bysing Wood. In the lane to Moor Farm.

Origanum vulgare. Roadsides, banks, and woods; common, but almost confined to the chalk.

Calamintha Acinos. Badging Wood and Down. Middle Wood. Woods about Belmont.

Calamintha Nepeta?. By the roadside between Davington Priory and Ham Road.

Calamintha officinalis. Behind the ruins of Stone Church. Borders of Bysing Wood. Whitehill Road.

Calamintha Clinopodium. Borders of Bysing, Syndale, and Cockset woods. Porter's Lane. Whitehill Road. About Selling and Belmont; frequent.

Ajuga Chamæpitys. Cornfield beyond Badging Wood; rare.

Ballota nigra. Roadsides about the town; frequent.

Lamium Galeobdolon. Frequent in all our woods.

Galeopsis Ladanum. Chalky fields: about Porter's Lane and Badging Down; beyond Cockset Wood; below Selling Church.

Galeopsis Tetrahit. With white flowers. By the path from the little wood beyond the Four Oaks to Beacon Hill.

Galeopsis versicolor. Path-side in Sandbanks Wood. In a potato-field near Norton; very rare.

Stachys Betonica. Bysing, Syndale, and Cockset woods.

Nepeta Cataria. In a hedge on the London Road near Chapel House. In the gravel-pit, Cockset Wood; rarely.

Note.—A few plants (originally in the above list) of somewhat frequent occurrence in the south of England have been omitted. It is hoped that the author of the communication will kindly excuse their omission.

DESCRIPTIONS OF NEW BRITISH LICHENS.

By J. G. BAKER.

1. *Parmelia rubiginosa,* var. *cæruleo-badia* (Lichen cæruleobadius, *Schl. Crypt. Helv.*). Thallus greyish-leaden coloured, composed at the centre of granular areolations, foliaceous at the margin; apothecia irregular, dark-chestnut coloured, margin

granular, incurved, crenate.—Lichen cæruleo-badius, *Schl. Crypt. Helv.* Parmelia rubiginosa, *β*, *Schær. Spic.* 469 (*excl. Dill. Syn.*); *Enum. Crit.* 36. Lichen lanuginosus, *Hoffm., non* Parmelia, *Ach.; Fries.* Parmelia conoplea, *Ach.* Imbricaria, *Dec.* Pannaria, *Delise.* Parmelia rubiginosa, *β*. conoplea, *Fries, Lich. Eur.* 88; *Summa*, i. 104.

Exsic. Fries, Succ. 75.—Schær. Helv. 369.—Moug. et Nestl. 347.

Hab. Trees in Stanstead Park, Essex, 1843, *R. Jacobs.*

Though clearly shown and now universally considered to be only a degenerated variety of *P. rubiginosa* (Squamaria affinis of Hooker, Brit. Fl., vol. v. p. 96), this Lichen (*vide supra*) was treated as a distinct species by many of the older authors. "It affects," says Schærer, "stones and the trunks of trees in shady places in mountainous districts," and has been recorded from Switzerland, France, Germany, and Sweden.

2. *Lecidea candida* (Lichen candidus, *Weber, Spic.* 193). Thallus white on the upper surface, black beneath, composed of short, tumid, tartareous scales, aggregated into a rugoso-plicate crust, which is flattened at the circumference; apothecia placed at the edge of the scales, black, cæsio-pruinose, white within, margin thick, prominent, usually flexuose.—Lichen candidus, *Weber, Spic.* 193, *non Fl. Dan. t.* 1064, *fig.* 1. Patellaria, *Hoffm.; Sturm;* Psora, *Dec.* Lecidea, *Ach. Meth.* 79 (*in part*); *Lich. Univ. p.* 212; *Schær. Spic.* 120; *Enum. Crit.* 103; *Wahl. Suec.* 1717; *Fries, Lich. Eur.* 285, *excl. syn. Eng. Bot.* 1138; *Summa*, i. 112.

Exsic. Ehrh. Cr. 49.—Schær. Helv. 167.—Moug. et Nestl. 642.

Hab. Stanstead, Essex, 1843, *R. Jacobs.*

This species is frequent in calcareous districts, either amongst the mountains or plains throughout Southern and Central Europe, and extends as far north as Lapland and St. Petersburg. It comes under the scope of *Psora* as described in the 'British Flora,' and thus belongs to a group of species of the Friesian genus *Lecidea*, of which *L. vesicularis* (Psora cæruleo-nigricans) is the only other clearly established indigenous representative. In appearance *L. candida* considerably resembles that common and very variable Lichen, but may be known by its closer and pure white crust, and by its permanently pruinose apothecia.

"Apothecia," says Fries, "intra areolas enata videntur, sed re ipsa e latere areolarum, quare hujus substantiam primitus secum elevant et margine thallode instructa videntur et pruina consperguntur; intus alba sunt, sed excipulo cupulari integro at non uti *L. vesicularis* libero recepta." According to an authenticated specimen in my collection, gathered by Sir J. E. Smith himself, and labelled by Turner, *Lichen candidus* of 'English Botany,' 1118, is identical with *Lecidea mamillaris* of Gouan, *Lichen tumidulus* of Smith, Linn. Trans. i. t. 14, fig. 3, a native of the south of France, Spain, and the Tyrol.

3. *Umbilicaria hyperborea* (L. hyperboreus, *Ach. in Vet. Ac. Handl.* 1794). Thallus coriaceo-membranaceous, mostly monophyllous, brownish-olive-coloured, when adult irregularly rugoso-papillose above, glabrous and somewhat lacunose below; apothecia adpressed, at first between patellæform and lirellose, afterwards plicate.—Lichen hyperboreus, *Ach. in Vet. Ac. Handl.* 1794, *p.* 89, *t.* 2, *f.* 2; *Lich. Prod.* 146. Umbilicaria, *Schrad.*; *Hoffm.*; *Sturm*; *Fries, Lich. Eur.* 353; *Summa*, i. *p.* 117. Gyrophora, *Ach. Meth.* 104; *Lich. Univ.* 225; *Flörke*; *Fl. Dan. t.* 1744. Gyromium, *Wahl. Suec.* 1670. Umbilicaria ænea, *β*, *Schær. Spic.* 91. U. polyphylla, *γ*, *Enum. Crit.* 129. U. papillosa, *DC.*

Exsic. Fries, Suec. 126.—Schrad. 117.—Funck, 99.—Schær. 151.—Moug. et Nestl. 1047.

Hab. Rocks in Clougha, Lancashire, July 1843, *W. W. A. in herb. R. Jacobs.*

This species grows principally upon granitic rocks in mountainous districts, most plentifully in Scandinavia, but occurs also southward amongst the Alps, Pyrenees, and neighbouring chains. Relative to the question of its specific distinctness Fries writes, "Potest pro prioris (*U. polyphylla*) filia forsan haberi, at non mera est forma senilis *L. alpestris*, nam exstat utique quædam differentia primitiva, sub analogia evolutione constans, quod e diversa distributione geographica et diversa vegetationis historia in Suecica, ubi melior explicata forsan quam in alia terra, patescere videtur. Nam in sua regione angustiori priorem non excludit, sed in magis recedentem formam mutat."—*Lich. Eur. ref.* 353–4.

4. *Umbilicaria depressa* (Schrad.). Thallus subcoriaceous, rugose, greyish-pulverulent above, brownish and more or less densely

hairy beneath; apothecia depressed, flat or rarely tumid, patellæform, afterwards plicate, margins thick.—U. depressa, *Schrad. in Ach. Lich. Univ.* 230; *Schær. in Seringe Musc. Helv.* 1, *p.* 93, *t.* 10; *Spic.* 81. U. vellea, *β, Fries, Lich. Eur.* 357; *Schær. Enum.* 23.

Exsic. Schær. Helv. 137–142.

Hab. Rocks in Clougha, Lancashire, July 1843, *W. W. A. in herb. R. Jacobs.*

Doubtfully distinct from *U. vellea* and *hirsuta,* with which it is united in the 'Lichenographia' and 'Enumeratio.' Of the latter, *L. murinus,* Eng. Bot. t. 2486, is a form, but the examples figured were of foreign growth, and I am not aware that either of these is known to inhabit Britain. The Lichen under consideration is plentiful amongst the Alps, and grows also amongst the Pyrenees and Sardinian mountains. It is not likely to be confounded with any other indigenous species. The Lancashire examples agree best with Schær. Exsic. 138, the common Alpine variety.

MOSSES IN THE ISLE OF MAN.

Primitiæ of the Bryology of the Isle of Man. By JOHN H. DAVIES.

(*Continued from page* 22.)

43. *Zygodon Mougeotii,* B. and S. On wet rocks in Glen Laxey and Glen Moij Waterfall.
44. *Zygodon viridissimum,* Brid. With old capsules, on a tree near Castletown.
45. *Tetraphis pellucida,* Hedw. Glen Laxey.
46. *Atrichum undulatum,* Pal. Beauv. Frequent on banks, etc.
47. *Pogonatum aloides,* Brid. In heathy places; common.
48. *Pogonatum urnigerum,* Brid. On an old wall near St. John's.
49. *Pogonatum alpinum,* Brid. Head of Glen Laxey, Snafell, and the Lezayre Hills near Ramsay; very fine.
50. *Polytrichum commune,* Lin. Common,—two or three varieties.
51. *Polytrichum juniperinum,* Hedw. } Not uncommon in the
52. *Polytrichum piliferum,* Schreb. } mountainous districts.
53. *Aulacomnion palustre,* Schwægr. In fruit in Glen Laxey.

54. *Bryum nutans,* Schreb. Heaths, etc.
55. *Bryum carneum,* Lin. Banks of streams. Barren.
56. *Bryum pseudo-triquetrum,* Schwægr. Glen Laxey, and banks of the stream near Castletown.
57. *Bryum alpinum,* Lin. Glen Laxey; sparingly.
58. *Bryum pallens,* Swartz. Very fine at the head of Glen Laxey.
59. *Bryum obconicum,* Hornschuch. At the roots of *Cystopteris fragilis,* on an old bridge near Castletown. Mr. Wilson, who is inclined to think our British specimens to belong to only one of the numerous forms of *B. capillare,* assures me, that "your *B. obconicum* does appear to be as good as any yet obtained in Britain."
60. *Bryum capillare,* Hedw. On walls, banks, etc.
61. *Bryum atro-purpureum,* W. and M. On an old wall near Kirk Braddan; and at Ballavaghe, between Douglas and Peel.
62. *Bryum julaceum,* Smith. On a dripping rock at the commencement of Glen Laxey.
63. *Bryum argenteum,* Lin. Common.
64. *Mnium affine,* Bland. Marshy places in Glen Laxey.
65. *Mnium rostratum,* Schwægr. Banks in Glen Doo; and the ruins of Kirk St. Trinian, near St. John's.
66. *Mnium hornum,* Hedw. }
67. *Mnium undulatum,* Hedw. } Frequent.
68. *Mnium punctatum,* Hedw. }
69. *Funaria hygrometrica,* Hedw. Everywhere.
70. *Enthostodon Templetoni,* Schwægr. On the banks of the stream near Castletown; very fine.
71. *Bartramia fontana,* Brid. In fruit in Glen Laxey, etc.
72. *Bartramia pomiformis,* Hedw. On a bank near Castleward, Douglas.
73. *Bartramia arcuata,* Brid. Glen Laxey.
74. *Fissidens bryoides,* Hedw. On banks, etc.
75. *Fissidens osmundioides,* Hedw. On a dripping stone at the commencement of Glen Laxey, with *Bryum julaceum.*
76. *Fissidens taxifolius,* Hedw. Common on banks, etc.
77. *Isothecium myurum,* Brid. Glen Laxey.
78. *Isothecium myosuroides,* Brid. On a shady rock in Glen Laxey.
79. *Leskea sericea,* Hedw. On trees; not common.

80. *Hypnum lutescens,* Huds. On banks near Douglas and Castletown.
81. *Hypnum plumosum,* Swartz. Common in the Glens.
82. *Hypnum populeum,* Swartz. On a wall near the Quarter Bridge, Douglas.
83. *Hypnum velutinum,* Hedw. Banks; not uncommon.
84. *Hypnum illecebrum,* Lin. On sandy banks, Douglas, Castletown, and Peel.
85. *Hypnum rutabulum,* L. Abundant.
86. *Hypnum rivulare,* Bruch. In the stream near Castletown.
87. *Hypnum prælongum,* Lin.
88. *Hypnum Swartzii,* Turn. Hedge-banks.
89. *Hypnum striatum,* Schreb.
90. *Hypnum ruscifolium,* Neck. On rocks and stones in the streams.
91. *Hypnum serpens,* Lin. On walls, etc.; not common.
92. *Hypnum stellatum,* Schreb. Glen Laxey, and wet cliffs about Onchan.
93. *Hypnum palustre,* Lin. Glen Laxey. A curious fluitant form in the stream near Castletown.
94. *Hypnum sarmentosum,** Wahlenberg. Bogs in Glen Laxey.
95. *Hypnum cordifolium,* Hedw. Marshy situations in Glen
96. *Hypnum cuspidatum,* Lin. Laxey.
97. *Hypnum Schreberi,* Willd. In heathy places; frequent.
98. *Hypnum purum,* Lin.
99. *Hypnum tamariscinum,* Hedw. Hedge-banks, etc.
100. *Hypnum splendens,* Hedw.
101. *Hypnum flagellare,* Dicks. Abundant in Glen Laxey.
102. *Hypnum triquetrum,* Lin. Common.
103. *Hypnum loreum,* Lin. Glen Doo, near Douglas; sparingly.
104. *Hypnum squarrosum,* Lin. Common.
105. *Hypnum fluitans,* Lin. Glen Laxey.
106. *Hypnum revolvens,* Swartz. Wet rocks in Glen Laxey.
107. *Hypnum filicinum,* Lin. Marshy places.
108. *Hypnum uncinatum,* Hedw. In fruit on shady banks near Peel.
109. *Hypnum cupressiforme,* Lin. Everywhere.
110. *Hypnum denticulatum,* Lin. Shady banks.

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* Mr. Baker has recently discovered this species on the edge of Micklefell, Teesdale,—the first notice of its occurrence in England.—J. H. D.

111. *Omalia trichomanoides,* Brid. With old fruit on banks near Douglas.
112. *Neckera complanata,* B. and S. On an Ash-tree in the ruins of Kirk St. Trinian, near St. John's.
113. *Fontinalis squamosa,* Lin. With fruit in Glen Laxey; plentiful. In Peel Water, and the stream near Castletown.

Thirsk, Yorkshire, September, 1856.

Review.

On the Flowering Plants and Ferns of Oxfordshire and the contiguous Counties. By M. T. Masters, *Lecturer on Botany at St. George's Hospital, London, etc. etc.* Printed for the Ashmolean Society.

This interesting *brochure* (a single sheet in octavo) contains, as preliminary matter, an explanation of the principles on which the six Tables are constructed. These Tables may be considered as the general results of the whole. The district is nearly equivalent to Mr. Watson's sub-province of West Thames, which includes the counties of Berks and Bucks, in addition to Oxfordshire. The Author however states, that his remarks are applicable only to the immediate neighbourhood of Oxford, except where otherwise expressed.

The *native* plants are (see Table I.) 728. The *denizens,* or *now* thoroughly-established plants, which are supposed to have been introduced at some remote period, are 29,—a very moderate estimate. The *colonists,* or weeds found in cultivated fields, are 31. The *aliens,* either presumed or known to have been introduced at a recent period, are 59,—a large proportion, as several of the colonists and even denizens may be classed under the same category; the only difference being, that the denizens were introduced at an earlier period than the aliens. In process of time the *aliens* will become denizens, and the *latter* will pass into the class of *natives.* If an existence of three or five centuries entitles a plant, or a class of plants, to the title or claims or privileges of a denizen or denizens, it may be presumed that all the aliens, if they maintain their settlement, will, in the course of from three to five centuries, take a higher civic rank among the British plants. The denizens will then probably become *natives,* and the aliens will be *denizens.* The author considers the aliens as fewer than is to be expected, "from the long existence of a botanic garden." They compose however rather more than one-fourteenth part of the whole,—a considerable proportion. Oxford is highly cultivated, or a large portion of its surface is under tillage, and wherever that is the case *aliens* will increase, whether there be a botanic garden or not. There is not a single plant *now* about Chelsea which owes its origin to the Chelsea Botanic Garden, except it may be *Linaria Cymbalaria;* and this plant is far more abundant in places remote from this collection than in its immediate vicinity. These aliens, as they are called, which appear to be peculiar to Oxford, are *Senecio squalidus, Hieracium amplexicaule, Arabis Turrita,* and *Lepidium Iberis.* The small-flowered Balsam has for several years been well established near Kew and Mortlake, as also in the neighbourhood of Battersea (Nine Elms). *Erodium maritimum* occurs in other inland counties, as in several parts of Worcestershire. *Ajuga Chamæpitys* and *Dianthus Armeria* are not commonly deemed aliens, though they may be alien in Oxfordshire. *Geranium pyrenaicum* has been, as the author states, classed among the denizens, because of its abundance and thorough establishment on the eastern side of Oxford. Probably it extends eastward to London in the valley of the Thames on both sides of the river.

The list of defunct species, as given by Mr. Masters, is not a long one: in this respect probably few counties have been more gently dealt with than Oxford. The first is a critical plant, the very existence of which is ignored by some botanists, while some make several species out of it. The plants given by our author as probably extinct are, "*Thalictrum majus, Althæa officinalis, Erodium moschatum, Trigonella ornithopodioides, Lythrum Hyssopifolia, Tordylium maximum, Andromeda polifolia, Melampyrum cristatum, Scrophularia vernalis, Teucrium Scordium, Asarum europæum, Daphne Mezereum, Muscari racemosum, Phleum asperum, Bromus arvensis, Agrostis setacea, Gnaphalium dioicum, Elatine hexandra, Campanula rapunculoides, Lycopodium Selago,* etc." We presume that the "etc." does not represent many species. The plants not included in any of the local lists are, excluding *Rubus,* etc. (the variable genera), *Œnanthe fluviatile,* *Sonchus asper*, an offshoot from *S. oleraceus, Potamogeton prælongus*, and *Polypodium calcareum*.

The Fritillary is still abundant near Oxford. The Snowflake, we regret to state, is nearly extinct there: it is to be feared that its old station opposite Blackwall produces it no longer. The common Broom, the common Heaths, and the Bilberry are not found near Oxford; the first-mentioned only rarely: cultivation has probably extinguished them. *Digitalis purpurea* and *Solidago Virgaurea* are also Oxford rarities. *Chlora perfoliata* occurs on wet clays in two localities near Oxford. In the Isle of Wight this plant occurs indifferently either on the clay or chalk: we have seen it on the very stiffest and wettest clay between Alum Bay and the Fort near Yarmouth.

We give the following extracts, which will be as interesting to our readers as they are to ourselves.—"Since the tables were constructed, it has been shown that some of the plants therein included as species are but varieties: thus Professor Buckland has shown the specific identity of *Trifolium pratense* and *T. medium*; of *Festuca pratensis* and of *F. elatior*, etc." Again: "Although not immediately connected with the Flora of Oxfordshire, the following fact, which has been brought under the notice of the writer since the foregoing remarks were written, appears to be worthy of notice here. Writing to my father on the subject of the Bee Orchis (*Ophrys apifera*), G. C. Oxendon, Esq., of Broome Park, Kent, remarks, that 'for forty years of my life a certain field on this estate was under the plough, and after this it was laid down for grass, and the third year after it was thus laid down there appeared in it at least a hundred Bee Orchises: more in fact than existed in a circuit of five miles round.' This appears to be analogous to such instances as that of the appearance of *Sisymbrium Irio* among the rubbish left after the fire of London in 1677 [*Qy.* 1667?], as related by Ray. A similar occurrence has been observed by Mr. Baxter in Oxford (see Baxter's 'Phænogamous Botany,' *Sisymbrium*). The phenomenon is still more difficult of explanation in the case of the Bee Orchis, from the rarity with which perfect seeds are found in that plant, and it is not apparent how the pseudobulbs, by which the plant is propagated, could have been introduced."

SPIRANTHES GEMMIPARA.

By Prof. Lindley. (*From the Gardeners' Chronicle.*)

This rare Irish Orchis, discovered near Cork as long ago as 1810, was published by Sir J. E. Smith under the name of *Neottia gemmipara,* and was figured under the same name in the 'Supplement to English Botany.' Dr. Lindley, in his 'Genera and Species of Orchidaceous Plants,' referred the plant to the genus *Spiranthes,* with the remark, that it so much resembles *S. romanzoffiana,* an Unalashka plant, that he could scarcely doubt the identity of the two. Subsequently Mr. Babington, in a paper read before the Linnæan Society, referred the Irish plant unhesitatingly to the American *S. cernua.* These three conflicting suggestions concerning the plant were on record by British botanists:—First, Smith's, who compares it with *S. autumnalis,* still regarding it distinct; second, the author's (Dr. Lindley), that it was probably *S. romanzoffiana*; and third, Babington's, that it was *S. cernua.*

The author stated, that at a recent examination of the Neottian Orchids he had occasion to reconsider these different views in order to ascertain the true relationship of the Irish plant, and his conclusions were these,—that the identification of the Irish *S. gemmipara* with *S. cernua* is to be regarded as a mistake; that the Irish plant must be admitted as a perfectly distinct species, peculiar, as far as at present known, to a small district in Ireland. He first stated his conviction that the affinity of the species was much closer with *S. autumnalis* than with *S. cernua*; although distinct from the former by its dense three-rowed spike, its leafy stem, scarcely longer than the radical leaves, its short pyriform ovary, and the very broad base to its lip.

FEEJEE ISLANDS AND THEIR VEGETATION.

(*An Extract from the Proceedings of the Dublin University Zoological and Botanical Association.*)

This cluster, which forms a portion of the Friendly Islands, so called on the *lucus a non lucendo* principle, possesses a tropical vegetation, as may be inferred from its situation.

The wood- and forest-trees are ornamented with what are called epiphytes (climbing plants, growing on the trees), both of Orchids and Ferns. Tree Ferns also abound, and of the trunks of these the native houses are built.

There are two native pines (a *Dammara* and an *Araucaria*), and a species of *Casuarina* furnishes the best club-wood. (The importance of this tree in the Friendly Islands intimates that the friendliness of the inhabitants is like that of the spider to the fly.)

The Yam is grown in dry ground on the hill sides; it requires a good deep soil, which must be well dug, and kept free from weeds during the growth of the crop. The root, when carefully cultivated, grows to eighteen inches or two feet in length, and weighs ten to twenty or thirty pounds, or more. In shape and aspect it resembles a Mangel-wurzel, but in its farinaceous property and taste it is more like the Potato, though botanically it is far removed from that plant. Yams are perhaps more watery than the Potato; but, if well baked, become dry, and are quite as well tasted as ordinary Potatoes. The Feejee Yams are however inferior to those grown in the Tonga groups, which may be owing to difference of soil.

The Sweet Potato (as the edible root of a species of *Convolvulus* is termed) is grown occasionally, but does not constitute a staple crop. Two kinds of Arrowroot abound in the plains, and their roots are collected by the natives, but I did not see them cultivated in gardens.

Almost every house has its patch of Bananas, of which the natives cultivate several varieties. These fruits are a very important element in the food of the people, and are eaten both raw and roasted, or variously dressed. The Sugar Cane is seen in a few places, and might be cultivated to any extent. The Bread-fruit-tree abounds, but its fruit was not in season during my visit.

The Cocoa-nut, which is generally so abundant on the shores of all tropical islands of both hemispheres, does not seem to flourish in Feejee, or at least is only abundant on some of the islands. In the neighbourhood of Bau, Cocoa-nuts are so scarce that they are *taboo* to the common people, being kept for the use of the chiefs. At Lakemba they abound, and the natives manufacture a considerable quantity of oil. Where the Cocoa Palm grows, its nuts, used when about half ripe, furnish the luxuries of puddings and drinks; and the husks supply fibre, of which the natives make their very neatly-plaited ropes. At dinner the milk of the cocoa-nut is generally drunk hot, and the dessert closed by a cold nut.

The great luxury of the islands in the way of drink however is derived from the *Piper methysticum;* a specimen of which is on the table. This is a large-growing shrubby Pepper, which the Feejeeans call *Yangona,* but which is elsewhere more commonly known under the name *Kava,* or *Ava.* It is universally cultivated, and on approaching a chief it is usual formally to present him with a piece. The method of preparing a drink from this root has been often described.

BOTANICAL NOTES, NOTICES, AND QUERIES.

DROSERA LONGIFOLIA, *var.* CAULESCENS?

Since writing a notice of a caulescent form of *Drosera*, found near Killarney, I have received intimations of its being in the hands of collectors from two other sources. First, from Mr. Hardy, of Manchester, who has kindly promised to send me a specimen collected in Lancashire. Secondly from Mr. Kirk, of Coventry, who writes to me as follows:—"I found the caulescent variety of *Drosera intermedia* very fine and plentiful, not far from Taylor's Hill, Galway, in 1854. Although my specimens are in fruit and flower, I see no difference except in luxuriance. I regret that I have given them away so freely that I cannot send one with this. I have received a similar form from Tolchmoor, Devon. I think it is not uncommon in Connemara." Thus far there is evidence of the plant having been found in six different places (five of these recently), and in localities very considerably removed from each other. The question to be settled is simply—has *D. longifolia* a strong tendency to the caulescent state; or are the above-mentioned discoveries to be regarded as proofs that the caulescent plant is specifically distinct from *D. longifolia?*

W. M. HIND.

STACHYS ARVENSIS.

Have you ever observed in the above-named plant a fondness for throwing out tufts of radicules (radicles?) from the lower part of its ascending stem? I have found it frequently this autumn. is it a common occurrence in an *annual?* Two monstrous varieties of *Linaria Elatine* and *spuria* are very common with us,—the one double, and more rarely triply-spurred, the other with the throat prolonged of equal width throughout, instead of terminating in a spur, and the lips very small and scarcely distinct. The whole corolla is thus very like that of the common Musk-plant.

Faversham. HUGH A. STOWELL.

ANNUAL TEMPERATURE.

Hypericum perforatum, which has a horizontal range of 11°, or which grows between 50° and 61°, and has a temperature ranging from 52° to 46°, remarkably differs from the following, viz. *H. dubium*.

H. dubium, with a range of 7° (50° to 57°), flourishes in a temperature ranging from 51° to 45°.

H. montanum, with a range of only 5° (50° to 55°), is stated to grow in a temperature ranging from 50° to 47°.

The temperatures at the further or north end of the series are feasible enough, viz. 61° latitude and 46° temp., 57° lat. and 57° temp., and 55° lat. and 57° temp.

But how is it that the temperature differs so widely at the southern end of the horizontal range? All the three above-mentioned plants grow in latitude 50°, yet there is two-degrees-difference between their respective temperatures. The temperature of *H. perforatum* is 52°, of *H. dubium* 51°, and of *H. montanum* 50°. QUERIST.

[Perhaps the learned author of the 'Cybele Britannica' will condescend to enlighten our correspondent.]

LOCALITIES AND RANGE OF BRITISH PLANTS DESCRIBED IN 'BRITISH BOTANY.'

Some misapprehensions having arisen about the publication of single localities of certain rare species, the author wishes to state *clearly* that when one or even two stations are entered where the said species have been observed, it is by no means to be implied that they are confined to these mentioned localities. As examples, *Iberis amara* and *Erodium maritimum* are cited: the former about Pangbourn, etc., because it abounds there (its range is quoted from 'Cybele Britannica'). The latter, as is well known, occurs on various parts of the coast, as well as in the vicinity of saline springs in the interior. The locality given is several miles from any known salt-spring.

CONTRIBUTIONS TO THE ORCHIDOLOGY OF INDIA. *By* PROF. LINDLEY.

The most remarkable and unexpected fact is brought to light by the examination of a great mass of materials, that certain of the species are found to have an extensive range.

It has hitherto been believed that these plants were extremely local, such being probably the case with epiphytal species; but it has been proved quite the reverse with the terrestrial ones, the range of some of which turns out to be as wide as that of the most ubiquitous species belonging to other natural orders. *Orchis latifolia*, which had been long known to wander into North-western India, had now been found in Western Thibet. *Herminium monorchis*, in no respect distinguishable from its English state, had been found in North-west India, and probably in Sylhet. *Gymnadenia cucullata*, a plant of Eastern Europe and Siberia, seemed to be the same as one gathered by Dr. Hooker at an elevation of 14,000 feet in Sikkim. *Goodyera repens* was common in Sikkim; while *G. procera* extended from Sikkim, by way of the Neilgherries, Ceylon, and Java, to China. A plant, which the author believed to be *Spiranthes autumnalis*, is found in North-western India; and *S. australis* everywhere, from Siberia, North-west India generally, Ceylon, and Java, to China, New Holland, and New Zealand. It was added, that any one who has examined a large number of species would be correctly led to regard the latter variable plant as nothing more than our own *S. æstivalis*. *Epipactis veratrifolia*, a remarkable Persian species, the same without doubt as the common Indian species described under the names of *E. consimilis*, *macrostachya*, *herbacea*, and *Dalhousiæ*, were only so many states of the common European *E. latifolia*. *Cephalanthera acuminata*, abundant all over Northern India, is identical with *C. ensifolia* of England. *Epipogium Gmelini*, recently discovered in England, had been found in Sirmur.

"Facts of this nature," observes the author, "are of the more importance, seeing that the ordinary modes of dispersion—by birds, by winds, by waves, by man—would seem to be here inoperative, or at least insufficient to explain such very remarkable ranges (a plant appearing at two points of the globe, distant about 12,000 miles from each other)."

CALIFORNIAN PINES.

Description of the Gigantic Trees of California. By REMY, *Archives de Science Nat. et Phys. (Bib. Universelle de Genève).*

The extent on which these giants of the forest are standing is not above a mile in circuit, and its height above the coast-line is scarcely 5000 feet (4883). The trees are about ninety in all, and the smallest has a diameter of 15 feet; and, as our author states, they surpass all the other trees of the forest as much as the Italian Poplar surpasses the Osier; or, as Virgil has it, "Quantum lenta solent inter viburna cupressi." Yellow Moss and Lichens ornament their lofty stems, and a *parasite* (*pace Newman aliorumque*), of the genus *Hypopithys*, grows on their roots. The majority of these trees have had their heads broken off by the incumbent masses of snow which lodge on them in winter, and many have been much injured by fire. One of them, as is generally known, has been stripped of its bark to the extent of 100 feet; and though this tree was peeled more than two years ago, it still survives the loss of its rind. Whole families of people could be comfortably accommodated in hollow spaces that have been consumed by fires. The author gives the following description and dimensions of the most remarkable. The *big tree*, 95 feet diameter, and 300 feet high. Five men laboured twenty-five days in cutting down this immense tree. A house and skittle-ground are erected on the stump; room is left for a pavilion, with benches, intended for theatrical representations. Travellers have estimated the age of some of the trees, which are not the largest, at 3000 years; but the author of this account estimates the age of these at not more than 2000 years. The 'Miners' Cabin,' the 'Three Sisters,' the 'Old Bachelor,' 'Uncle Tom's Cabin,' 'Mister Shelby,' 'Bride of California,' etc., range from 70 to 95 feet diameter, and from 280 to 360 feet in height. The father of the twenty-four children has been laid prostrate for several years. The diameter of the base of the patriarchal tree is 110 feet, and its probable estimated height 450. Truth is stranger than fiction: a tree equalling the dome of St. Paul's in diameter, and 100 feet higher than its ball and cross, is a production worthy of the grand country in which it had its beginning and development.

LINNÆAN SOCIETY.

Note on the Cultivation of MOSSES; *by the Rev. H. H. Higgins.*—The author's bryarium consisted of a glass case, four feet six inches long, twenty-two inches from back to front, and twenty-six inches high, fitted with shelves, and having two doors, one of which was generally left only partly closed. The plants were kept in separate pots, and never moved from the case, but kept in the shade and frequently watered with a syringe. Some care was taken to procure suitable kinds of soil, but in most instances soil had been but sparingly used, the pots being more than half filled with drainage.

In this bryarium about 240 species had been planted; and the paper consisted chiefly of notes of the result. Among many instances of failure or but partial success, the author mentioned some instances in which the results had been satisfactory, among which were the following:—*Grimmia pulvinata* proved a charming little plant for cultivation, but required to be kept rather dry. *Aulacomnion palustre* was another most desirable kind for cultivation, growing freely, the tall *pseudopodia* being both abundant and interesting. *Leptobryum pyriforme* is one that should be excluded, as it became a perfect pest, growing everywhere but in its own pot. *Bryum nutans* and *corneum* both produced their fruit freely. *Physocomitrium pyriforme* fruited so densely as completely to hide the leaves. The *Bartramias* were stated to be on the whole the best and most satisfactory Mosses for cultivation; nothing of the kind, observes the author, can exceed them in beauty of colour, growth, and fruit. The species of *Fissidens* were also gems for cultivation; and it was mentioned, that the author's plant of *F. adiantoides* was a portion of a specimen which has been in cultivation for twenty years. *Leskea sericea* and *polycarpa* were other very beautiful and suitable species for cultivation. The *Hypnums* were found to be of straggling habit, and seemed to have their vitality chiefly confined to their extremities, for if cut off, the plant will not throw up fresh shoots from the root, but perishes; while the extremities, if planted, make vigorous growth. Finally, *Hookeria lucens* proved to be alike beautiful in winter and summer, never changing or losing its delicate freshness. These, it appeared from the author's experience, were the most desirable Mosses for cultivation.

BOOKS RECEIVED FOR REVIEW.

Moore's Index Filicum; Part the Second.

Communications have been received from

E. M. Attwood; W. P.; G. E. Hunt; Delta; John Windsor, F.L.S.; George Jordan; C. A. C.; Dr. W. Lauder Lindsay; Henry J. Church; Sydney Beisley; W. H. Wilkin; George Davies.

THE DIATOMACEÆ:

Their Characteristics and Structure; together with Remarks on Collecting and Examining this Order of Plants. Communicated by HENRY J. CHURCH.

[The following pages are condensed from Rabenhorst's work, 'Die Süszwasser Diatomaceæ' (Berlin, 1853)—'The Fresh-water Diatomaceæ,'—a cheap and useful book. They form by far the larger part of the Introduction; a few passages only being omitted, in order to bring the present Paper within due limits.]

The Natural Order *Diatomaceæ*[*] consists of unicellular organisms, possessing a prismatic flinty skeleton or frame, and containing a peculiar golden-yellow or brown colouring matter. Propagation—by the division of the parent-cell into two new cells.

No order in organic nature is more strictly defined than that of the *Diatomaceæ*. Their inflexible siliceous framework—destructible neither by a red-heat nor by decay—distinguishes them at once from all known organized bodies. If their near neighbours, the *Desmidieæ*, approach them as regards form, a simple experiment at once removes all doubt. This experiment consists in placing a small portion of the specimen in question upon mica or platinum foil, and exposing it to a red heat by the aid of a spirit-lamp. All organic matter is thus destroyed, and only the frame of the Diatom remains, its form unchanged; while, on account of the removal of its contents, its structure is more sharply and clearly defined. Care must be taken however that no salts of potash or soda be present; otherwise, as is well known, they would enter into chemical combination with the silica, and produce glass.

If the Diatom be infallibly distinguished by the *material* of its exterior, we meet with yet other characters hardly less peculiar. The *form* of its framework is highly symmetrical; round (*rund*), discoid, cylindrical, or prismatically quadrangular, with acute angles, and generally plane extremities. The two surfaces which correspond in *position*, almost invariably correspond also in form; hence, in diagnoses, we need only describe one side and one extremity. Sometimes the former is the more developed, sometimes the latter,—presenting the greater diversity of form, structure, and markings, and affording the more essential characters for the genera and groups.

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[*] From the Greek δια, *through*, and τεμνω, *I cut.*

The external surface of this flinty structure is, almost without exception, smooth and even: internally, however, glandular thickenings of the most varied kind are found projecting. The particles of silica which compose these, lie less compactly than those on the perfectly smooth planes,—presenting umbilical nodes of definite form (globular, oblong, cuneate, or funnel-shaped). Some of them appear as little dots, arranged regularly, and extending in the direction of the length or breadth of the Diatom: others, again, present opaque lines, traversing the same directions, and, according to their width, designated *ridges, ribs, stripes,* or *lines,*—these also being often bordered with dots.

Thus the *Diatomaceæ* are so characterized by their form and structure, that at first glance they may be distinguished from every other organism. Proceeding inwards from this siliceous exterior, we come next upon a delicate membrane—the cell proper—by which the flinty skeleton is produced. This membrane encloses the contents of the cell, which consists of a slimy substance, and of a peculiar brown or golden-yellow colouring-matter, quite distinct from the chlorophyll of plants. Chlorophyll is soluble in alcohol, and in contact with alkalies dissolves, forming a yellowish-green substance; whereas the colouring-matter of the *Diatomaceæ* is insoluble in alcohol (though bleached by it after some time), and remains unacted upon by alkalies. While the Diatom is yet young, this colouring-matter is equally distributed; but in a short time it undergoes various changes, in common with the interior of the cell generally. It assumes the most diversified forms,—these mostly symmetrical, and often extremely elegant. Granular bodies are at the same time produced, which circulate with a spiral motion in the interior of the cell,—a phenomenon resembling that which takes place in the cells of some *Algæ* (*Spirogyra*).

The Diatom thus formed, is found to be enveloped in a kind of mantle, corresponding to the cuticle of the higher plants. Being of a gelatinous consistence, it is now apparently absent, and again very evident. Sometimes it forms the medium of attachment between numbers of Diatoms, which appear as groups or masses, in seeming disorder, or in regular rows. Occasionally it is more developed at the extremity of the Diatom, forming a kind of pedicel; and sometimes, though very rarely, an exact counterpart of this is produced in the opposite direction.

The *Diatomaceæ* multiply by the separation of the old or parent cell into two new cells. The contents of the parent-cell become divided, and a primordial utricle is formed round each portion. Shortly these grow into new cells, which either remain in contact, or become separated. In some genera two connected Diatoms are split asunder, and their contents, surrounded by a primordial utricle, form a process called a *gonidium*. Sometimes numerous rudimentary cells—at first unsymmetrical, afterwards regularly oval or oblong—are developed within the parent-cell, after awhile circulate there, and become discharged by the breaking up of the old cell. In a surprisingly short time they attain or even surpass the size of the parent-cell, which, immediately after discharging its contents, ceases to exist.

An apparently voluntary motion is displayed by almost all the unattached *Diatomaceæ*, and particularly by those shaped like a boat, as the *Naviculæ*. This motion greatly varies; sometimes it is calm, sometimes fitful; now progressive, now retrograde. If obstacles interfere, the Diatom diverges from its straightonward course, and passes alongside the obstruction, or swims round it, its anterior extremity being either raised or depressed: this motion arises from the reception and expulsion of fluids by the Diatom. If these fluids are received at the right side, and expelled at the left, the movement is towards the right, and *vice versâ*. As both halves of the Diatom, physiologically and morphologically, are precisely alike, the reception and expulsion of the fluid may take place either to the left or right, and hence the motion may be progressive or retrograde.

Wherever moisture prevails, one is sure to meet with Diatoms. They are most abundant in spring, and are found in puddles and ditches, as well as in the clearest streams. Their production and increase are often astonishingly rapid. On allowing a glass of water to remain for some days in a room, they may be detected, together with minute algæ, deposited on the bottom and sides of the vessel. In spring the number of species is comparatively small, and that of the individuals of each species great; while in summer and autumn the variety of species is much more considerable, one gathering often showing from ten to twenty. They form slimy pellicles, of a brownish or greenish colour, on mud, stones, pieces of wood, and other submerged bodies. In company with *Algæ* they cover the entire sides of rocks, conduits, etc., and are found swimming freely in tufts of *Confervæ* and similar plants; or they live, parasite-like, on water-weeds, often in such numbers as to cover them like *Aphides*. Sometimes, by being connected end to end, they form brown chain-like processes, several feet in length, resembling the filamentous *Algæ* (differing from these, however, by immediately becoming disconnected when touched). Lakes and stagnant waters are often full of them, and they are occasionally raised, by escaping gases, several inches above the surface of the water in frothy heaps. Only a few species appear to have any choice as to locality, the majority having just as little regard to this as to thermal differences. Many species are distributed over the whole surface of the earth; found from the poles to the equator, in the waters of the glaciers and in the hottest springs. The sea has its characteristic forms, differing widely from those of fresh-water localities. Diatoms met with in salt inland waters are mostly referable to the latter.

But the distribution of the *Diatomaceæ* goes still further: we may assume their invariable presence in dust. If we consider how heavy bodies are sometimes blown about and transported from place to place by the wind, we can easily conceive the same to be the case with the little Diatom that, far minuter than the smallest particle of dust, frequently remains suspended long after the aerial strata again become calm. If the atmosphere wherein they are suspended be not sufficiently loaded with moisture, they die a natural death, and soon only their indestructible skeleton remains. But in the atmosphere in damp weather perfect Diatoms are not unfrequently discovered, their contents fully coloured. Once taken up by the breeze, they are found on the castle turret, the mountain-top, the dust that settles on our books, and, in short, *everywhere*.

The mode of collecting the *Diatomaceæ* is most simple, and needs no particular instruction. A case of from twelve to eighteen inches long, more or less, wide-mouth stoppered bottles, each capable of holding from two to four drachms of water, is the first requirement. Every bottle should be numbered on the stopper or on some convenient place, and according to these numbers the locality of each gathering is entered in a note-book. A spoon for skimming purposes completes the outfit.

The specimens thus collected are to be examined at home. Portions of each may be preserved either in the mass, or by diluting a little with a few drops of water, spreading it on a slip of glass, and evaporating to dryness. These slips are wrapped in paper, on which the necessary notice is to be written, and arranged systematically or alphabetically, no matter, so that each object can be readily found when wanted. Diatoms are sometimes preserved in spirit, on account of the organic contents remaining, in this medium, almost unchanged.

For the investigation of the *Diatomaceæ* a microscope magnifying from 250 to 300 diameters is necessary.* Besides the microscope, a good lens, forceps, glass rods, needles and handle, together with some hair-pencils for cleaning the eyeglass, are necessary. Suitable glass slides, and thin glass for covering the object, are sold by the optician: care should be taken that the surface of both glasses be perfectly even.

Thus equipped, we commence our investigations. A portion, the size of a pin's head, is taken from the specimen to be examined, laid upon a slip of glass, diluted with a drop of water, covered with a piece of thin glass, and placed under the microscope. The whole surface of the covering-glass must be in contact, any obstacle being easily removed by the needle, and air-bubbles must be guarded against. For the better recognition of the object, specimens may be exposed to a red-heat, and afterwards examined.† This renders their structure and specific characters more evident, and admits of their accurate delineation,—a process requiring particular apparatus and considerable skill, but which possesses many recommendations.

Warwick, April, 1857.

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* Rabenhorst mentions several microscopes of this description by foreign makers. I am credibly informed that Mr. Baker, 243 and 244, High Holborn, manufactures an instrument, price two guineas, which answers every purpose. It is capable of magnifying 300 diameters.—H. J. C.

† Instead of employing a red-heat, specimens may be advantageously placed in a test-tube, and boiled in strong nitric acid over the spirit-lamp or gas. The acid must be poured off after the sediment has quite subsided, and this sediment washed several times in water, to guard against the deposition of crystals of nitrates on the glass slides. The damp sediment is placed on a slip of glass, a drop or two of water added if necessary, thinly spread over the glass, and the moisture evaporated. Each specimen should be carefully examined prior to the acid-treatment.— H. J. C.

THE ROOT OF WATER HEMLOCK.

"A most distressing case of poisoning, by which the lives of two fine young men have been sacrificed, has occurred in the pretty little village of West Boldon, near Sunderland. John Snowdon, a farmer's son, and William Ridley, a labourer, went out on Wednesday morning to clean a hedge and ditch belonging to the father of the former, adjoining the Newcastle road, and about noon the same day they were found lying paralyzed and speechless in the field, close to the ditch where they had been employed. There was a mark of blood on Ridley's face, and a black mark was forming round Snowdon's eyes. A carter saw them first, and imagining they had been fighting, gave an alarm, and assistance was brought to them. They were removed in a cart to the village, and medical aid was summoned, but both the poor fellows expired shortly after they were got into a house, and their bodies blackened all over. The medical men gave it as their opinion that both the unfortunate young men had died from the effects of a vegetable poison. A quantity of the Water Hemlock (*Cicuta virosa*) grew in the ditch where they had been employed. One of them at least had been in the habit of eating some simple roots; and, from the fact that the root of the Water Hemlock was subsequently found with teeth-marks in it near to where the men had been laid after losing their consciousness, and that another piece of the same root was found in Ridley's pocket, there is no doubt whatever but that they were poisoned by eating the root of this plant in mistake for some other. Snowdon was only eighteen years of age; Ridley was thirty-five, and has left a widow, with a small family, but meanly provided for."—*From the 'Times' of April* 13, 1857.

Is a general knowledge of the poisonous plants superfluous in common life?

It is now upwards of twelve months since a similar distressing case of accidental poisoning happened at Tain, in Ross-shire, through the mistaking of the roots of Monkshood for Horse-radish. Few plants are more unlike than those just named. Our correspondent asks a very plain and important question, which every one is qualified to answer.

Ignorance of common things is not confined to the labouring classes, as the case in Ross-shire plainly shows: the parties who suffered from eating Monkshood for Horse-radish were gentlemen of the more elevated and instructed grades of society. We look to the active intelligent young men now training for the honourable and useful profession of public instructors, to free us from the danger and reproach of inability to distinguish between salutary and noxious plants.

One of the victims of ignorance had been, it appears, "in the habit of eating simple roots," a fatal habit for him, and its fatal termination should be a warning to others. It is always dangerous to tamper with unknown objects. There are many plants virulently poisonous in every part; some are so in some parts: but every suspicious plant should be avoided. We could give a description of Water Hemlock, but it would be of no use; for all our readers are either sufficiently acquainted with the plant and its nature, or they know that the Order to which the plant belongs contains many plants dangerous to those that eat them, and many positively poisonous. We most seriously recommend such a knowledge of botany as would be a preventive of similar disasters, to form a part of the instruction given at every school, whether such be established for the higher or the lower ranks of people.

ON PROGRESS.

The 'Phytologist,' like every other periodical which enlarges the boundaries of human knowledge, is the advocate of progress. Progress is however twofold in its nature. It may either be promoted by adding to the height of the pyramid by which knowledge may be represented, or by increasing the altitude, and at the same time enlarging the area of the base. Progress consists in the spread of science, as well as in its accumulation. And in order to make science effective as an educational means, or, in more general terms, in order to make it conducive to the improvement and well-being of the greatest number, it must be spread horizontally as well as be elevated or accumulated vertically. Our ardent wish is to make this Journal instrumental in diffusing a knowledge of botany in general among the masses, even among those who are deterred by the difficulties which beset the very alphabet of science.

Several papers on Cryptogamic Botany have appeared in our pages, viz. on *Lichens, Mosses, Fungi, Filices, Equiseta,* etc.; and it is not very improbable that there may be some of our readers who cannot satisfactorily distinguish a *Lichen* from a *Fungus,* or even a *Fern* from a *Lycopod.* It is therefore most respectfully suggested to our scientific and good-natured correspondents, that a series of short, plain, comprehensive articles on the limits and distinctions of *Fungi, Lichens, Algæ, Hepaticæ,* etc. would be very acceptable. There is some risk of becoming liable to the obnoxious charge of invidious partiality in commending any individual article which has been printed in our pages. Yet we will for once incur this risk, and will undertake this responsibility; and hereby we particularize a paper on the *Diatomaceæ* as being exactly what is wanted in order to carry into practice the hint which is here merely thrown out.

It is far from our intention to prescribe to those who are generous enough to give us the cream of their knowledge and the fruits of their experience, *what* they should write about, and *how* they should write it. We only give publicity to a generally felt *want;* and hope that those who have the means and the inclination will effectively assist us in redeeming a pledge which was given at the commencement of this *our* undertaking.

ECONOMICAL BOTANY.

By George Jordan, *of Bewdley.*

An account of some of our British plants which were used by our ancestors as esculents and medicaments, and are also occasionally used at the present time.

Then horticulture and the science of medicine were in their infancy. But now the character of plants is so completely changed by culture, hybridizing, and excess of nutriment, as to have entirely changed their physical characters, and rendered them totally unlike their progenitors, so much has been done for the enjoyment, health, and well-being of the human race. We need not go now into the fields, woods, and waysides to gather our esculents, as our forefathers used to do. Whatever may be said in favour of the "good old times," we have no wish for a retrogression as regards our agricultural, horticultural, and floricultural advantages.

It seems as though some mystic power hath lent its aid to metamorphose nature thus, that she even does not know herself; she, ever in her generations chaste, still disowns her hybrid progeny, yet always prone to receive again to her bosom her vagrant offspring.

An account of some of our British plants, used as esculents:—*Sinapis nigra* and *S. alba,* the young tops. This *S. nigra* was much cultivated for its seeds, which were used as a condiment, and also medicinally. They were bruised by the rotary motion of an iron ball in a wooden bowl; the appearance was unsightly, but it was genuine mustard. *Sisymbrium officinale, Ægopodium Podagraria, Chenopodium Bonus-Henricus, Chenopodium album, Myrrhis odorata, Atriplex patula, Polygonum Bistorta, Allium ursinum, Urtica dioica.* Our Saxon ancestors cultivated the Nettle, as we do Hemp, for cloth for domestic uses; paper may be made from its fibre. *Humulus Lupulus,* the young shoots. *Petroselinum sativum, Erysimum Alliaria.* Those herbs mentioned were used in the spring of the year and early part of the summer, and were considered very wholesome and beneficial for purifying the blood; and undoubtedly in those times were useful for that purpose as attenuants, when scorbutic complaints were so prevalent, from feeding during the winter months on salted meats, and when our present culinary esculents were unknown.

Many of those plants which were considered as good for food and medicine, and were cultivated in gardens for those purposes, still linger about our dwellings as outcasts.

Oh, how delightful were those excursions I used to take, to gather those esculents and medicinal herbs for the village doctress, to relieve her suffering neighbours' ailments! Collecting those herbs first gave me a desire to study botany, which conferred on my after-years the greatest enjoyment.

In no pursuit is there more pleasure derived than from the study of natural history. Let the morbid sceptic study natural history; it will remove the gloomy visions of his mind, and he will become the happiest of mankind.

The following herbs are principally used in domestic therapeutics for different purposes:—

As tonics and corroborants, we have no occasion to go to Peru for *Cinchona,* when we have at home plants equally efficacious,—

our *Polygonum Bistorta, Tormentilla officinalis*, and *Salix Caprea*. For dyspepsia: *Inula Helenium, Anthemis nobilis, Marrubium vulgare, Menyanthes trifoliata, Teucrium Scorodonia, Erythræa Centaurium, Artemisia Absinthium*. Diuretics: *Cytisus scoparius, Leontodon Taraxicum, Daucus Carota, Arctium Lappa*. Corroborants: *Agrimonia Eupatoria, Verbena officinalis, Betonica officinalis, Tanacetum vulgare*. As carminatives, all the Mints. Nervines: *Artemisia vulgaris, Fumaria officinalis, Valeriana officinalis*. Cathartics: *Rhamnus catharticus, Linum catharticum, Senecio vulgaris, Sambucus nigra, Sambucus Ebulus*. Detergents: *Pyrethrum Parthenium, Chelidonium majus, Sanicula europæa*. Rubifacients: *Bryonia dioica, Ranunculus acris, Tamus communis, Sinapis nigra*, the bruised seeds, *Cochlearia Armoracia*. For gargles and lotions: the barks of Oaks, *Rubi*, and *Salix Caprea*. As antiscorbutics: all the Docks, *Ulmus campestris, Malva sylvestris, Potentilla reptans*. As discutients for indolent tumours: *Digitalis purpurea, Conium maculatum*. Emollients: *Malva sylvestris, Symphytum officinale*. Attenuants: *Stellaria media, Galium Aparine, Tussilago Farfara, Glechoma hederacea*. Vulneraries: leaves of all the *Rumices, Sanicula europæa, Hypericum perforatum*, one of the sacred herbs, a panacea for many ailments, *Stachys palustris, Plantago major*, called Waybread, Wayberry, Ribwort. The proper name and most significant is Waybred; for by the sides of the hardest trodden ways it prefers to grow, in preference to other places, in rank and file, with lances raised, to keep the traveller in the way.

It would be better to eschew the following deleterious plants from your domestic physic; leave those to the homœopathist, from whose atomic globules you surely can receive no harm, which is an important consideration.

It has been too much the fashion of late to use very extensively both vegetable and mineral poisons by the regular practitioner, and which has taught mankind their baneful uses. From such knowledge the most deplorable consequences have ensued.

There are still many valuable exotics cultivated in our gardens, and much used as domestic medicaments, such as *Ruta graveolens, Rosmarinus officinalis, Hyssopus officinalis*, the *Lavandulas, Melissa officinalis, Artemisia Abrotanum, Salvia officinalis*.

A phytological Materia Medica and Pharmacopœia of our British plants would be of much value to the domestic Æsculapius: probably Æsculapius himself used little else except herbs.

CALAMINTHA NEPETA, *Clairv.*

As grave doubts exist about the specific existence or identity of the above plant, it is hoped that the following notices may not be unseasonable. The subjoined characters are those of a plant gathered somewhere in West Surrey, and which has been in the herbarium for some considerable time.

C. Nepeta, Clairv.—Stems roundish, erect, leafy, densely woolly, mostly simple, or with short opposite branches. Leaves small, ovate-deltoid, obtuse, with blunt serratures, and on short petioles (this character varies, but, as a general law, the petiole is considerably shorter than the leaf), pale-green, hairy. Flowers in forked cymes, not numerous. Calyx subcylindrical, not swelling in front, teeth equal, linear or filiform, with short fringes, hairs of the throat prominent?

In Kittel's 'Taschenbuch der Deutschen Flora,' the author states that it is very similar to the foregoing *C. vulgaris.*—"Flowers lilac-coloured, the lip dappled with violet; the two lower calyx-teeth nearly twice as long as the three upper; clusters of ten to fifteen flowers.—A very variable plant."

Mr. Leighton's idea of *C. Nepeta* is thus stated in the 'Flora of Shropshire,' p. 290.—"Leaves smaller (than those of *C. vulgaris*), on very short petioles, ovate or ovate-deltoid, obtuse, serrated. Flowers in dichotomous, axillary, many-flowered cymes; calyx subcampanulate, not swelling in front, indistinctly two-lipped, segments all subulate and straight, the two lower ones slightly longer than the three upper ones, hairs of mouth prominent; central lobe of lower lip of corolla rounded and entire; seeds paler, brown, less conspicuously dotted."

Dr. Walker, in his 'Flora of Oxfordshire,' 1833, distinguishes both species or states, and says,—"Specific difference between *T. Calamintha* and *T. Nepeta* (*Calamintha Nepeta*) not easily defined. Leaves of this, *C. vulgaris,* larger, with smaller serratures. Flower-stalks shorter than the leaves; hairs at the mouth of the calyx less prominent. Flower-stalks axillary. Leaves stalked, in opposite pairs.—Flavour of this much less like Pennyroyal (*Mentha Pulegium*). Cor. light purple, dotted with Violet."

"*T. Nepeta* (*C. Nepeta*).—Stems ascending, square, rough. Leaves stalked, egg-shaped, Flower-stalks axillary, repeatedly forked. Calyx-hairs closing it, like a mouse-trap, very closely. Corolla variegated with pale-purple and white. Leaves smaller than in *Thy. Calamintha* (*C. vulgaris*).—Plant pungent, smelling like Pennyroyal; used as a stomachic tea."

My impressions of the plant in a recent state are, that the whole herbage is of a much lighter green than that of *C. vulgaris*, that the flowers are larger and of a fainter colour, and that the smell of this plant is much less like Pennyroyal than the smell of *C. vulgaris* is. I find that all authors, from Ray to Smith, describe the odour of *C. Nepeta* as strong, or very strong, and resembling that of Pennyroyal.

A. I., *Chelsea.*

BOTANICAL NOTES FROM WELLS, SOMERSETSHIRE.

By the Rev. T. F. Ravenshaw, M.A.

The soil about Wells is chiefly limestone; and the proximity of the Mendip Hills, and the many sheltered valleys, afford a variety of climate which renders the Flora of the district a very rich one. *Corydalis lutea*: Banwell. *Clematis Vitalba*, *Thalictrum minus*: Cheddar Cliffs. *Ranunculus auricomus*: Bishop's Wood, Wells. *Ranunculus hederaceus*, Glastonbury. *Helleborus viridis*: near Tyne Hill, Wells. *Meconopsis cambrica*: Cheddar Cliffs. *Cochlearia officinalis*: Cheddar Cliffs. *Arabis hirsuta*: Ebber Cliffs. *Barbarea vulgaris*: Bristol Road. *Hesperis matronalis*: near Bristol Road. *Reseda fruticulosa*: Banwell. *Helianthemum vulgare*: Tor Hill, Wells. *Viola odorata* and *imberbis*, *Linum catharticum*: Tyne Hill. *Acer Pseudo-platanus* and *Acer campestris*, *Erodium cicutarium*: Tor Hill. *Geranium lucidum*: Walcombe Woods. *Geranium molle*: Tor Hill. *Geranium columbinum*: Walcombe. *Oxalis Acetosella*: Wokey Hole. *Euonymus europæus*, *Genista tinctoria*: Tyne Hill. *Orobus tuberosus*: Walcombe. *Poterium Sanguisorba*: Lyott Hill. *Alchemilla vulgaris*: Walcombe. *Pyrus Aria*: Ebber. *Epilobium hirsutum*, *Circæa lutetiana*, *Lythrum Salicaria*, *Bryonia dioica*, *Cotyledon Umbilicus*: Walcombe. *Sedum album, Sedum reflexum*: Walcombe, sparingly. *Ribes Grossularia, Ribes nigrum*: side of a stream near Shepton Mallet. *Saxifraga tridactylites*: on all the walls. *Chrysosplenium oppositifolium*: Wokey Hole. *Chrysosplenium alternifolium*: Walcombe. *Sanicula europæa*: Horrington Woods. *Adoxa Moschatellina*: very common. *Viburnum Opulus*: Bishop's Wood. *Asperula odorata*: Milton Wood. *Asperula cynanchica*: Ebber. *Valeriana officinalis*: Horrington Woods. *Fedia olitoria*: under the Palace walls. *Petasites vulgaris, Tussilago Farfara, Pulicaria dysenterica*: all three frequent. *Cnicus eriophorus*: Tyne Hill. *Campanula rotundifolia*: Cheddar Cliffs. *Campanula Trachelium*: Milton Hill. *Gentiana Amarella*: Warminstow. *Cynoglossum officinale*: Tor Hill. *Lycopsis arvensis*: under the walls of the Great Barn, Wells. *Symphytum officinale* and var. *patens*: not unfrequent. *Lithospermum officinale*: Tor Hill. *Lithospermum arvense*: Mendips. *Borago officinalis*: Dinder. *Myosotis palustris, Myosotis collina, Salvia verbenaca*: on the road to Cheddar, not far from Wells. *Thymus Serpyllum*: Lyott Hill. *Ajuga reptans* and a *white* variety: Walcombe Wood. *Verbena officinalis*: Cheddar. *Linaria Cymbalaria*: common. *Scrophularia nodosa*: Cheddar Road. *Lathræa Squamaria*: Lyott Hill, rare. *Veronica serpyllifolia*: Wokey Hole. *Veronica humifusa* (var.): Lyott Hill. *Veronica Beccabunga*: very common. *Veronica officinalis*: Walcombe. *Verbascum Thapsus*: Mendips. *Verbascum Lychnitis?* Banwell. *Primula vulgaris*, var. *caulescens*: not unfrequent. *Hottonia palustris*: Glastonbury. *Lysimachia nemorum*: Horrington Woods. *Polygonum Bistorta*: Walcombe Woods. *Daphne Laureola*: Tor Hill. *Euphorbia amygdaloides*: Bishop's Wood. *Mercurialis perennis*: very common. *Alisma Plantago* and var. *lanceolatum*: near Tor Hill. *Orchis Morio*: Horrington. *Orchis latifolia*: near Dulcot Hill. *Orchis maculata*: common. *Orchis mascula*: common. *Habenaria viridis*: meadow near Dulcot Hill. *Habenaria bifolia* and *chlorantha*: Tyne Hill, in great abundance. *Neottia spiralis*: Warminstow and Milton Hill. *Listera ovata* and *Nidus-avis*: Horrington Woods. *Epipactis latifolia*: Ebber. *Ruscus aculeatus*: near Dulcot Hill. *Paris quadrifolia*: Milton Wood. *Allium ursinum*: Walcombe Wood. *Arum maculatum*: Tor Hill. *Luzula Forsteri* and *campestris*: Bishop's Wood. *Luzula pilosa*: Walcombe. *Colchicum officinale:* a meadow near Milton Wood. *Tamus communis, Pteris aquilina, Blechnum boreale, Polypodium vulgare, Polypodium calcareum:* Cheddar. *Cystopteris fragilis:* Cheddar. *Polystichum angulare, Lastrea Filix-mas, Lastrea spinosa, Lastrea multiflora, Athyrium Filix-fœmina, Asplenium Adiantum-nigrum:* not common. *Asplenium Ruta-muraria, Asplenium Trichomanes, Scolopendrium vulgare, Ceterach officinarum:* very common. *Ophioglossum vulgatum:* meadow near Walcombe Wood.

Reviews.

The British Botanist's Field Book: a Synopsis of the British Flowering Plants. By A. P. Childs, F.R.C.S. London: Longman, 1857.

It is *now* just ten years since an original work on the British Plants was offered to botanists. The 'Phytologist' *then* described *it* in the following rather *cool* terms:—"This work omits a very great portion of the more useful parts of Hooker's 'Flora' and Babington's 'Manual,' and contains no useful additions to make amends: it appears ill-adapted for students, the arrangement of matter being obscure, and in many instances unintelligible."

Again, "We can scarcely imagine that the most remote probability of success attends the publication of a descriptive list of British Plants in opposition to the established works of Hooker and Babington; but we have no wish on this account to prejudice the work before us," etc.

This is all very like offering the *cold shoulder* to the *new-comer,* the friendless stranger, and reminds us of Bailie Nicol Jarvie's remark on the shabby reception he received from his fair cousin, Helen Macgregor, in the pass of Aberfoyle. The virago attempted to hurl him headlong over a precipice into Lochard, which the Bailie quietly said was a sort of *Highland hospitality* far on the *north side* of friendly. The author of the present work will at all events get a more genial greeting from the 'Phytologist' *now,* than his immediate predecessor got *then.* Literary and *scientific* sinners will not be roughly handled in the pages of the New Series of the only serial work *now* existing on the subject of British Botany. The ingenious author of *this* new Flora will not be treated like a poacher on the fair domain of science, but hailed as a fellow-labourer in a field large enough for all who are genuine well-wishers to the spread of science and to the progress of humanity.

It is but just to Mr. Childs to allow him to open the subject, and to explain his object in his own words.—"It is obvious that, in preparing this book, a chief object has been the reduction of its bulk, by selecting, as nearly as possible, the essential marks, and those alone, by which each Order, genus, and species may be distinguished."

Lest the botanical public (a small one, but not likely to be rendered smaller by such books as this under notice) should think that the "gentleman doth profess too much," to what has been above quoted he very modestly subjoins: "To accomplish this task fully and successfully would demand a far larger experience than I can lay claim to, combined with a happy and rare faculty of observation, which would disregard characters, however striking, that are not permanent, and in the midst of all fix only upon those that are essential and determinate. I beg the reader to believe that, in offering this little book, I do not for one moment indulge the presumption that I have succeeded in accomplishing this. I offer it as a humble and necessarily very imperfect attempt to supply an undoubted deficiency." The effort is made in the right direction, and it is very unassumingly announced in the above extract from the author's Preface. "I have," he proceeds to inform his readers, "ventured however to hope that it might possibly be of further use. There has of late years been an increasing tendency in the direction of minute and needless subdivision, and it may not be amiss that even thus attention should be drawn in an opposite direction, to codification and condensation."

Botanists who delight in the multiplication of genera and species, may differ from our author. *Conservatives*, as they may be called, will approve whatsoever has a tendency to check the *progresistas* of science, those who promote the progressive development of botanical synonyms, a department which forms now no inconsiderable addition to the literature of Botany. *Quot homines, tot sententiæ:* "Many men, many minds."

The office of the reviewer is best *promoted* or fulfilled by *first* simply stating the author's object: if a good one, it will justify the intention of his work; and, *secondly*, by ascertaining how far the author has been successful in the accomplishment of his self-imposed *task*. It will be admitted that a really portable pocket field-book, arranged on what is on all hands called the natural system, was a *desideratum*. This want has been supplied. The work before us will be quite as easy to consult for the name of a plant as the London Catalogue; indeed it is not much heavier. The whole is comprised in 160 pages 12mo, with sixteen pages of Title, Preface, and Glossary; and the whole is in a neat flexible cloth binding. As there is no existing descriptive work on British plants so portable as the book under consideration, it may fairly be admitted that our author has accomplished that part of his task which involves portability. It is a more serious matter to lay before our readers the materials for forming a pretty accurate opinion of the merits of the work in the two essentials of arrangement and distinctive marks of Orders, genera, and species; yet we will do our best to enable them to form an opinion on this head also.

In our professional career we have often had occasion to complain that the authors of new Greek and Latin grammars—and many excellent *ones* have appeared in the last half-century—were not unceremoniously sent to Coventry, and their works rigidly suppressed. It is easy for a beginner to learn from any grammar, but it is a harassing office to have to *teach* according to half-a-dozen or ten systems, diverse in their arrangement and in their details. It is now somewhat above forty years since we were instructed in the simple art of counting stamens and pistils, and in the mysteries of *Didynamia* and *Tetradynamia* (the superiority of dimensions residing in *two* and in *four*). To our young, simple, and unsophisticated perceptions, these *distinctions* were in some examples very obscure and anything but *distinct:* but though our apprehension was weak, our faith was strong, and the name of Linnæus was as a tower of strength. To question the *dicta Linnæana* would have been deemed equally heterodox as to doubt the orthodoxy of the *Confession of Faith.* About twenty-five years ago we happened, incidentally, while speaking about our botanical doings to a friend who had never heard of the innovations of the last half-century, to mention that Linnæus and his system had been cashiered *by the march of in-*

tellect. He was perfectly astounded to learn that the present audacious generation of botanists ignored Linnæus, and Withering, and Smith, and followed Jussieu, De Candolle, Endlicher, Lindley, Fries, and a host of minor stars, (*quas*) *quos nunc præscribere longum est.* If any of our readers are aware that there are two distinct works on botany, by two independent authors, arranged exactly after the same system or in the same order, we do not know this fact, and should esteem it a favour to have the same pointed out to us. De Candolle's system ends where Jussieu's begins. Both these eminent systematists have adopted different nomenclatures and differing diagnoses, as well as differing arrangements. Dr. Lindley has given each of them a turn; but on the whole this eminent system-maker sticks to Jussieu. Fries and Endlicher have had no followers in Britain: De Candolle and Jussieu bear the palm among us. Our first British Flora on the natural system is on De Candolle's, modified to adapt it to our plants. Dr. Macreight's 'Manual,' Mr. Babington's 'Manual,' Hooker and Arnott's 'British Flora,' etc. etc., all differ more or less from each other; and subsequent editions of the same work differ from earlier ones, etc. etc. This, as has been already stated, may be of small moment to a beginner, to whom all systems are equally unknown, but it is a *trouble* to veterans who have had to learn and unlearn many previous modes of arrangement.

Hoping the readers of the 'Phytologist' will excuse this digression from our legitimate subject, *nous reviendrons à nos moutons.* Mr. Childs divides the British Plants into *Exogens* and *Endogens.* He omits the Ferns and Fern-allies, usually comprehended in similar works. The Exogens he divides into *Hermaphrodite* and *Diclinous* Exogens. The former term might have been dispensed with, because it is not entirely unexceptionable, and the terms *complete* or *perfect* are equally expressive: besides, the contrast would have been more intelligible to *tyros* if the nomenclature stood thus—"*Perfect or complete Exogens,*" and "*Imperfect or incomplete Exogens.*" Thus *one* disagreeable word, as well as a difficult one, might have been spared. The complete-flowered Exogens are subdivided into *Hypogynous* (ovary superior), *Perigynous* (ovary attached), and *Epigynous* (ovary inferior) species. He omits the subdivisions *Polypetalæ* and *Monopetalæ. Dichlamydeæ* and *Monochlamydeæ* are also discarded, and hence we have *Polygonaceæ, Illecebraceæ, Chenopodiaceæ, Amaranthaceæ, Aceraceæ, Droseraceæ, Berberidaceæ,* and *Ericaceæ,* between *Crassulaceæ* and *Caryophyllaceæ.* The Order *Leguminiferæ* follows *Labiatæ* and *Boraginaceæ. Rosaceæ* follows *Lentibulariaceæ.* The *Pines* follow the *Campanulas.*

Beginners may be better judges than we are how far these changes are conducive to their progress. We are of opinion (old-fashioned or unfashionable though the opinion may be) that to divide the Exogenous plants into such as have a polypetalous, and into those having a monopetalous corolla, when the perianth is double, and into such as have a single perianth or none at all, is not a bad division. These might be subdivided into plants which have the ovary free or the ovary *attached* or adherent, as the case may be; the latter of course comprising the Perigynous and Epigynous Orders; while the former would include all the *Hypogynous* plants. This is all we have to say about arrangement.

Some improvements might be made by Mr. Childs in the definition of the Orders: for example, "*Nymphæaceæ,*—stamens indefinite; styles single or none; petals passing gradually into stamens. Water-plants." Also, "*Elatinaceæ,*—stamens definite. Little marsh annuals." Again, "*Cistaceæ,*—stamens all perfect; sepals five, persistent." This character would include every Order with indefinite stamens and five persistent sepals, which is the rule in *Hypericaceæ, Rosaceæ,* and *Malvaceæ.* The following Orders are arranged under the common character "United carpels," viz. *Polygonaceæ, Chenopodiaceæ, Aceraceæ, Ericaceæ, Caryophyllaceæ, Linaceæ,* etc. We do not understand what the author means by "united carpels," but there is an evident and wide distinction between the fruit of *Spinach, Beet, Goosefoot,* and that of the *Pink, Flax, Wood Sorrel,* etc. In the distinctive characters of species, *Viola hirta* is described as being without scions. Both *Viola odorata* and *V. hirta* are stoloniferous. There are a few omissions of species which are usually enumerated among British plants, of which the following are examples: *Impatiens fulva,* a plant known to have been naturalized above two centuries, and which has an area of many square miles. *Maianthemum bifolium* is retained, with the character of a doubtful native. *Calamintha sylvatica* is another absentee; while *Thesium humile,* Vahl, duly appears, indorsed with the high authority of Mr. Babington. We think, of course, that *Impatiens fulva* is as equally well entitled to a place among British plants as *Thesium humile*. It is probable that the omission of this and of several other usually-recognized British plants was an oversight, and no intentional disrespect to the fair subjects of our remark.

The flowers of *Hottonia palustris* are stated to be purple: they often have a faint tinge of red, but their usual colour is white and slightly rose-coloured. They are described in Hooker and Arnott's work on the British plants as being "pale purple." They sometimes have a shade of what is usually called *pink*. This and other minor blemishes, such as *Urolensis* and *Herculus*, will be rectified in a second impression, which there is no doubt will be soon required. Upon the whole the printing is well done, and very creditable to the press and to the corrector.

While these minor defects in arrangement and description of Orders are thus prominently noticed, it is but just to the author, or rather to the students of the science, to state that the work deserves, with the above and similar exceptions, unqualified commendation. It contains a glossary of botanical terms, which will be useful to a beginner. This appendage to a British Flora Mr. Babington found it impossible to accord to the wishes of some young botanists. For this purpose—a knowledge of botanical terminology—this eminent botanist recommends several works, and last, though not least, "especially the 'Botanique' of M. A. De Jussieu." How many of our botanists can read French with either profit or pleasure? How many can afford to purchase such expensive books, or who have time to read them, we do not know; perhaps Mr. Babington, who recommends the books, does. But we know some zealous botanists who cannot avail themselves of such costly appliances. Mr. Childs has compiled a book for botanists who know only their own vernacular, and who cannot conveniently spend more than half-a-crown on a botanical work. But his work will be useful to every man who shoulders a *vasculum* or handles a *trowel*,—not a mason's implement, so called, but a plant-digger. It is very unimportant to real botanists, as distinguished from learners, what arrangement an author may adopt, or how meagrely he may define the Orders and the genera: all these a botanist knows at first sight; but he often forgets the names and the diagnoses of species, and these are in general distinctly and briefly given in the present work. As in an artificial system, the author has made natural arrangement subordinate to convenience; and though we are not able to see the convenience of an arrangement which is new and strange to us, yet we can see the very great conveniency of having the names of species followed by a few words which we presume generally express the distinctive character of the species. The glossary is also an improvement, even although it does not "possess that fulness and detail" which characterize the excellent works of Henfrey, Gray, Lindley, and Jussieu. The work will be useful to both classes of botanists: for those who possess the elaborate and expensive works above quoted, and also for that larger and less influential class of botanical readers and students for whom no one thinks it worth his while to write books. We hope the time is coming when botanical works will be as cheap as Routledge's Railway Library, and then botanists will be counted not by the score and the hundred, but by thousands and myriads.

Programme of a Course of Lectures on Botany now in course of delivery in the Royal Circus Institution (Edinburgh) for the Education of Young Ladies. By GEORGE LAWSON, F.R.P.S., etc. etc., Demonstrator of Botany and Vegetable Histology to the Edinburgh University, etc.

A copy of the above *Programme* has been sent to the 'Phytologist' by one of our contributors, and we beg to congratulate the fair *élèves* of the Scottish metropolis in being provided with so able an expounder of one of the most interesting of the natural sciences. We have laboured in a quiet way to excite some interest for botany in the metropolis of the south, not with much success. But the seeds have been scattered here and there: and as we are commanded to "cast our bread on the waters"—the bread of knowledge on the well-watered soil of the human intellect—we wait in hope that it will spring up and be reproductive. It is to the future teachers of the rising generation that we look for the extension of natural science; and we commend the consideration of the subject to the Principals and Professors of our normal schools, to the heads of those important educational establishments in which the future educators of the *million* are receiving their training.

Let them first be well indoctrinated in botany, zoology, etc., and they will be able to communicate, not mere facts about natural objects, but a love and admiration of the beautiful and the good. The men who admire and enjoy the productions of nature are rarely besotted with the coarse enjoyments of sensualism.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Leonard Plukenet.

If you can find a corner in your very interesting Botanical Notes and Queries for the following, it may draw attention to an individual, little of whose history is at present current amongst us; moreover, one who certainly deserves well of all botanists.

Is the precise locality or dwelling-house where Plukenet resided in Westminster known? We are quite familiar with a pretty little copper cut representing the *interior* of his study, and himself at work therein,—and laboriously he must have wrought there. Up to the present hour it may be fairly questioned whether any botanist has represented pictorially, or has preserved in the herbarium, so large a number of previously unknown plants in one lifetime, as Leonard Plukenet.

March, 1857. A Citizen of Westminster.

On the Exhibition of Fungi in Cases. *By the* Rev. H. H. Higgins.

The author stated that a case in the Museum of the Royal Institution of Liverpool had been placed at his disposal, and that he had filled it with arranged species of Fungi, numbering about 250 species, found in the neighbourhood of Liverpool, and illustrating the principal families and genera. The specimens, which had been dried without pressure, and retained in many cases their natural form and colour, were glued on oblong tablets of wood. This was the only series exhibited to the public in England or elsewhere, so far as known to the author, whose object was to attract more general attention to these interesting but much neglected plants.—*Gard. Chron.*

Arum italicum, *Mill.*

(*From the 'Manual of British Botany.'*)

Leaves triangular-hastate, with divaricate lobes and yellow veins appearing in the autumn. Spathe ventricose below, opening nearly flat, very broad above. Berries three-seeded.—I learn from Mr. Hambrough that *A. italicum* is very plentiful in the south of the Isle of Wight, and that it flowers in June, about a month later than *A. maculatum.*

[Will any good-natured botanist send us a specimen or a detailed account of the above *Arum*, which we do not find in Dr. Bromfield's 'Flora Vectensis'?]

Horse-Chestnut Flour.—The following is M. Flandin's plan of making flour from Horse-Chestnuts. Grind the Horse-Chestnuts, and mix with the pulp Carbonate of Soda, in the proportion of one or two per cent. at the utmost, and then wash the produce until it is perfectly white. 1 lb. of Carbonate of Soda will purify 100 lbs. of Horse-Chestnuts, and produce 60 lbs. of flour fit for bread, as the salt removes the bitter principle from the nut.—A. L. O., *Gard. Chron.*

SAXIFRAGA TRIDACTYLITES.

A correspondent from Galway, Ireland, writes, that the above plant was in flower there, as a weed in a gravel walk, as early as the 10th day of February, 1857.

ASPLENIUM SEPTENTRIONALE IN DEVON.

During the summer of 1856, the above rare Fern was found by Miss Hill. The locality is Lynton, on the north side of a loose stone wall, and at an elevation of 1000 to 1100 feet. It had previously been collected on the Somersetshire side of the boundary by Mrs. Chanter, but not actually in Devon.

BRYUM TORQUESCENS.

Sir,—I have much pleasure in recording an entirely fresh locality for the rare *Bryum torquescens*, Br. and Sch., which I had the good fortune to find last June, near Teignmouth in Devon; the obconical capsules are of a beautiful rich red colour, with palish teeth; inflorescence synoicous.

M. M. ATWOOD.

ANACALYPTA CÆSPITOSA, *Bruch.*

This species has occurred this month (April) near Arundel. Specimens having been submitted to Mr. Wilson, have received that gentleman's verification of their authenticity.

G. DAVIES.

April 20, 1857.

ORCHIS PYRAMIDALIS AND CARDAMINE HIRSUTA.

"At a recent meeting of the Linnean Society, G. Bentham, Esq., exhibited two curious instances of abnormal development in plants, the one being *Orchis pyramidalis*, having all its flowers destitute of the usual spur, and the other *Cardamine hirsuta*, in which the leaves at the point of junction between the petiole and the lamina (blade) had become proliferous. The latter specimens had been communicated by Miss Llewellyn, of Penllergare. Dr. Lindley remarked, in reference to the *Orchis*, that such cases had been observed, occurring, not commonly, but now and then, among cultivated species of this family, especially in the instance of *Calanthe veratrifolia*, and seemed to be connected with some disturbing cause, generally influencing the other parts of the floral whorls. In reference to the proliferous *Cardamine*, he adverted to the fact that something similar had been before recorded. These proliferous growths, he suggested, were to be referred to the organizing power of the cellular tissue, provided it were kept from decay for a sufficiently lengthened period for this to take effect."—*Ex Gard. Chron.*

NYMPHÆA ALBA, VAR. MINOR, AND CENTAUREA NIGRA, ETC.

Dr. Caspary, of Poppelsdorfer Schloss, Bonn, on the Rhine (Rhein), would esteem it a great favour if any botanist who sees or hears of this notification would give him or only lend him examples of the above variety. The Doctor informs the readers of this, that one flower and one leaf would be sufficient. If any such specimens are sent to the publisher of the 'Phytologist,' they will be forwarded to Dr. Caspary.

45, *Frith Street.*

It would greatly oblige us if our kind correspondent, E. M. A., who contributed an account of *Centaurea nigrescens*, *C. Jacea*, and *C. nigra* (see 'Phytologist' for October, 1856, p. 463), would furnish us, when convenient, with diagnostics of these plants, but especially of *C. Jacea.* Specimens of the latter would very much oblige the Editor.

ALDERS AND POPLARS.

Dorsetshire woodmen apply the following adage to the Alder poles, when peeled for rafters, viz.:—

> "Thatch me well, and keep me dry,
> Heart-of-Oak I will defy."

The wood-cutters of the midland counties repeat the same adage in praise of Willows and Poplars.—See 'Loudon's Arboretum,' p. 1681.

Where is the north coast of Sunderland, where the rare *Dryas octopetala* is reported to be abundant? See Hooker and Arnott's Br. Flora, 7th ed. p. 120.

What is the difference between *decurved* and *reflexed?*

What are the well-known Cuxton plants?—'Phytologist' for 1855–6, p. 293.

BLECHNUM BOREALE, ETC.

Mr. Editor,—Can you or any of your readers inform me why the specific name of *Blechnum boreale*, Sw., is printed *spicans?* (See 'Phytologist,' N.S. Vol. I. p. 301.) Its usual form is *B. Spicant.* BETA.

What is the difference between the terms *decumbent* and *procumbent,* between *leafits* and *leaflets?* QUERIST.

TO DELTA.

The Herbarium of the Botanical Society of London is established by its present proprietor, Mr. F. Y. Brocas, at 38, Tavistock Street, Covent Garden, as the London Herbarium of reference. If Delta will send us his *dubious* plants, we shall have much pleasure in attempting, at least, to resolve his botanical *doubts.* Any specimens may be transmitted through the Post-office, either to 45, Frith Street, Soho, or to 28, Upper Manor Street, Chelsea.

TREES IN IRELAND.

It appears from a return moved for in the last Parliament by Mr. H. Hughes, that 2,678,856 trees have been registered with the clerks of the peace in Ireland during the last ten years. The compiler of the return has not however obeyed the order of the House "to distinguish the numbers registered in each year."—*From the 'Times,' April* 10, 1857.

? REMEDY WORSE THAN THE DISEASE.

A great number of the large trees in the Champs Elysées are undergoing the process of being stripped of their rough outer bark to a height of twenty feet and upwards, with a view of destroying the worms that are bred and harboured in the interstices of the bark, and which, by piercing the trees with innumerable holes, prevent the sap from rising, and cause their premature decay.—*From the 'Times,' Paris, March* 30, 1857.

MUSCUS SCOTICUS.

In Petiver's 'Gazophylacii Naturæ et Artis Decades' there is the following notice at p. 16: "*Muscus scoticus corallio incrustatus.* Got in a fresh river near Clackmannan on Forth, within a few miles of Stirling, procured me thence by my curious and worthy friend Mr. James Hamilton, surgeon, in Edinburgh."—Can any of our readers inform us what the Scottish Moss is?

PRICES OF OLD BOOKS AND MSS.

Early manuscripts on botany, and pictorial representations of plants, are of course great rarities; but we confess we were scarcely prepared to find the following articles realize the enormous prices as affixed below. Amongst a very interesting collection of ancient MSS. sold by public auction at Messrs. Sotheby and Wilkinson's on the 30th of April, the two undermentioned lots were knocked down at the sums below recorded.

Lot 26. Astromica plurium Auctorum et Macer de Herbis. Written in the fourteenth century, with coloured drawings of the plants: £29.

Lot 389. Dioscoridis Opera Græcè. Manuscript of the twelfth century, on vellum, with numerous paintings of the plants, animals, etc.,—a most beautiful specimen of Byzantine caligraphy and art: £590.

Communications have been received from

J. B.; John Windsor, F.L.S.; W. Cheshire; Beta; Querist; A Citizen of Westminster; C. A. C.; John Barton; Rev. R. H. Webb; A. I.; Sydney Beisly.

BOOKS RECEIVED FOR REVIEW.

Natural History Review, for April, 1857.

ERRATA.

In the May number of the 'Phytologist' page 114, line 17 from top, occurs Professor Buck*land*, it ought to read Buck*man;* the paper there spoken of was read at the British Association Meeting at Cheltenham. In the volume for 1855–6, page 298, where in line 16 from bottom occurs "Low Honeybourne," it ought to read "Cow Honeybourne;" and 9 lines from bottom is "old red clay," this ought to read "new red clay," or still better "red clay" only, as there is none of the "old red" near Stratford.

At page 74, line 13 from the top, the word *from* should be *at*.

At same page, line 10 from the bottom, the year 1808 should be 1801.

Page 86, line 16 from the bottom, *for* Auchinore *read* Auchmore.

Page 88, line 3 from top, *for* vary *read* very.

In 'British Botany,' p. 144, Lotus major: the reference to E. B. is 30, the number of the volume; it should be 2091, the number of the Plate.

PLANTS OF SNOWDON.

A few Observations on the Character of the Snowdonian Flora.

Having spent more than two months last summer in the immediate vicinity of Snowdon, and enjoyed the opportunity of several very interesting botanical rambles on the surrounding mountains, perhaps a short account of some of the rarer plants which I obtained there may not be unacceptable to the readers of the 'Phytologist.' There are only two stations on Snowdon which I should consider to be worth a botanist's attention, as being rich in alpine plants, viz. the precipitous sides of Cwm Dyll above the copper-mines, especially those facing to the north-east, and the less lofty though equally craggy precipices above Cwm Glas, also facing north-east, and looking down upon the Pass of Llanberis. The Ordnance Map will clearly indicate these two localities, and by its help I would desire to direct attention to a peculiar formation visible in the Snowdon district, and on which I feel fully persuaded, from the experience I have had at present, that *all* the rarer alpine plants of the Welsh Flora are to be found.

Supposing the tourist to be ascending by the ordinary route from Capel Curig, directly he attains the level of the upper lake, the waters of which are of the most vivid green, through receiving the drainage of the neighbouring copper-mines,—if he turns his eyes towards the precipices immediately below the highest peak, Y Wydffa, which rises almost perpendicularly to a height of 1500 feet on his left, he will observe a thin band of rock, passing in a vertical direction down the precipices, clearly distinguished from the surrounding mass of clay-slate by its lines of stratification being disposed horizontally instead of nearly vertically, and then crossing over the upper part of the valley before him, ascending the precipices again on his right, till it becomes lost to view in the heights of Crib-y-Desgil and Crib Goch. On a closer inspection* this rock will be found to be of a totally different nature to that of the formations on either side; it consists almost entirely of an indurated sandstone, the softer parts of which have been worn away by the elements, so as to present a curiously honeycombed appearance,—and by this one peculiarity the rock may be traced throughout its whole extent without difficulty. It may perhaps be very familiar to many who have visited the celebrated fissure of Twll Dû, immediately above Llyn Ogwen, where the curious holes in the rock, there formed by the incessant drip of the water from above, have received the *sobriquet* of the Devil's Pots, the fissure itself being termed the Devil's Kitchen. But this interpolated rock, interesting enough in a geological point of view, is far more so when examined with reference to its botanical productions. As may be readily imagined, the porous sandstone affords a congenial home to the moisture-loving Ferns and rarer alpine plants, less able to thrive in the more rugged soil, where their hardier neighbours, as the *Saxifraga stellaris, Silene acaulis, Sedum Rhodiola,* etc. are found to flourish successfully. It is impossible to follow along the line of the sandstone rock, to which I have alluded, for ten yards, without having the opportunity of filling one's botany-case with magnificent plants of *Thalictrum alpinum, Vaccinium Vitis-Idæa, Lycopodium selaginoides,* and the beautiful little *Asplenium viride.* A closer search will furnish some fine plants of *Aspidium Lonchitis,* snugly nestled in their rocky crevices, but easily distinguished from a considerable distance by the glossy green of their rigid fronds. Also I found *Draba incana,* a plant peculiarly alpine, and have little doubt that a more protracted search would have revealed some specimens of the Woodsias. But here both I and my friend who accompanied me were completely beguiled by a clever "dodge" of the botanical guide at Llanberis, William Williams, which I will recapitulate for the benefit of those whom he may attempt hereafter to lead astray in a similar manner.

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* The Geological Ordnance Map does not mark it clearly: can any of your readers furnish a little information as to its character?

We first saw him in the hut at the top of the mountain, where he had been since daybreak, he having come up from Llanberis with a gentleman to see the sun rise, while we had ascended from Beddgelert. He left some time before we did, as we supposed, to go back to Llanberis; but on descending the precipices by the Capel Curig path, shortly before reaching the upper lake, we observed him ascending the precipices on our right, in the direction of the Snowdon summit, and felt little doubt that he was engaged in a search after some rare plants, as he had the reputation of being well acquainted with almost every inch of the whole Snowdon district. We accordingly directed our steps slowly towards the point at which he had ascended, and had not gone far before we found our suspicions were correct;—we were upon the productive sandstone formation, and had already made one or two "finds" when he came down to us with a magnificent specimen of *Aspidium Lonchitis* in his hands, which he had just obtained from the heights above; and on our accosting him he immediately volunteered to show us where the *Woodsia* was to be found. This was so tempting an offer, that we agreed to accompany him over the ridge to Cwm Glas, where he said we should find some plants, those on Clogwyn-y-Garnedd (the precipices he had just been on) having been cut off, according to his account, by the past night's frost, which I felt at the time strongly inclined to doubt, inasmuch as it was only the first frost of the season, and the time of year was not later than September 2nd. Before crossing over the valley, however, he showed us a very small plant of what he declared to be *Woodsia hyperborea,* but for the genuineness of which I could not venture to vouch, as all the mature fronds had been stripped off for the gratification of some greedy fern-hunters. The plant itself was completely hidden under a piece of rock, so that we had before walked almost over it; and Williams informed us, with a grin, that it was his usual practice either thus to hide up all the plants of *Woodsia* he could find, or to transplant them when growing in too exposed a situation, so as to prevent all possibility of their being detected. Another piece of information which he volunteered with equal satisfaction to himself was, that he was accustomed to give wrong habitats when applied to by Newman and other writers on Ferns for the localities of rare species: thus, he told us, he had informed Mr. Newman that Moel Lichog was a habitat for *Asplenium septentrionale,* when in fact Moel Lichog was miles distant from any known locality of the plant in question. In fact it was very evident that he delighted in "taking in" each successive visitor who trusted himself to his tender mercies, and then amused himself by chuckling over it to the next comer, who of course received the unpleasant impression that he was being treated in a similar way at that very moment. However, we retraced our steps to the head of the upper lake, and then commenced ascending the precipices on the north-east side of Cwm Dyll, in the direction of the peak or ridge called Crib-y-

Desgil. Three-quarters of an hour's scramble brought us to the summit. On the way up I was fortunate enough to fall in with several very fine specimens of *Aspidium Lonchitis* growing with a south-east aspect, quite an unusual thing for the more alpine Ferns, which seem generally to shrink from the sun as much as possible.

I would strongly recommend every one who has the opportunity to make a *détour* to this ridge, which could be effected without much difficulty from the ordinary route to Llanberis. The view was grander by far than anything I have yet seen in Wales, and quite unique of its kind. Let the reader imagine himself standing upon a narrow ridge scarcely twenty yards in width, with two yawning abysses on either hand,—the one some 1200 feet in perpendicular depth, the other perhaps about 700 feet; in the first, two little tarns, glistening in the morning sun, and of the most vivid green, from the quantity of copper at the bottom, lie embosomed in the vast abyss, the rocky precipices rising immediately above them on the other side of the Cwm; while looking above and beyond this ridge a thin streak of silver winding along a steep wooded valley marks the Aberglaslyn river as it hastens to discharge its waters into the estuary of Traeth-bach. But turn the other way, so as to face the north; the view on this side is in no way less striking. The white road winding in and out at the foot of the precipices forming the Pass of Llanberis is seen from its first commencement at the little inn of Gorphwysfa till it melts into the upper Llanberis Lake,—which, with its larger sister, lay sparkling joyously in the sunlight,—gradually dwindling away at length into the little river by which both empty themselves into the Menai Straits at Carnarvon. And there stood the fine old castle, as though it were the guardian of the valley, with the blue waters of the Menai behind it, and the now hazy expanse of sea beyond the distant Holyhead mountain.

It was indeed an exquisite view to gaze upon; but our time was short, and we soon began to descend the rocky heights above Cwm Glas, the highest and steepest of the many recesses on the Llanberis side of Snowdon. Our old friend, the honeycombed sandstone, began to appear again in a succession of terraces, one above another, like the seats of an amphitheatre; and a rare harvest we could have had there, had there been time for us to explore it thoroughly. As it was, we found *Saussurea* *alpina* in considerable profusion; *Aspidium Lonchitis* more abundantly than ever. Above our heads, on an inaccessible ledge of rock, the delicate *Lloydia serotina* was growing in happy security; while every crevice was filled with the most exquisitely divided forms of *Asplenium viride* and *Cystopteris fragilis*. I have little doubt in my own mind that the *Woodsia* was to be found there as elsewhere. But Williams's intention evidently was to lure us from the spot. He declared it grew below Crib Goch, about a mile or more nearer the Pass, in the direction of Gorphwysfa, and said he would take us to see it; but as he wanted to go back to the inn, and we preferred to descend into the Pass, we agreed to meet him halfway up after we had breakfasted, and then go with him to the spot. Of course he did not appear; and on meeting him a few hours afterwards at the Victoria Hotel he tried to shuffle out of it, but only succeeded so far as to convince us that he had been intentionally misleading us. So I would give my humble advice to all future explorers in those regions to trust to nothing but their own eyes and accurate observation of the various geological strata while searching for plants. I may mention that *Hymenophyllum tunbridgense* occurs in company with the *Wilsoni* along the banks of the stream, halfway between the Waterfall and the Victoria Hotel at Llanberis.

The finest specimens of all, however, that I have ever seen of this beautiful little Fern were in the Vale of Festiniog, on the south bank of the wooded glen immediately below the church. *Aspidium recurvum* or *Fœnisecii* (*Lastrea æmula*, Brackenridge), or whatever Botanists may choose to call it, occurred also most abundantly in the same spot. With respect to other of the rarer Ferns, I may mention that I found *Asplenium marinum* sparingly on the Great Orme's Head, halfway down the cliff, also abundantly on the cliffs between Port Madoc and Criccieth in company with *A. lanceolatum*.

Cambridge, April 29th, 1857. JOHN BARTON.

ANEMONE PULSATILLA, ETC.

Geological Relations of Anemone Pulsatilla *and* Astragalus hypoglottis.

Sir,—I observe in a recent number of the 'Phytologist,' that a correspondent remarks upon the absence of such plants as *Ane-*

mone Pulsatilla and *Astragalus hypoglottis* from the Floras of the chalk downs of Surrey as the result rather of their being overlooked than of a peculiarity in their distribution. I am inclined to believe that *Anemone Pulsatilla,* and I think I might include the *Astragalus,* are rarely if ever found off the lower chalk formation; and hence their absence on the chalk downs of the Weald, where the lower chalk scarcely crops out at all. The herbage on each of these two formations is markedly different, especially in the old, unworked clunch-pits of the eastern counties, as Cambridgeshire, Suffolk, etc., where the *Anemone* is frequently found raising its beautiful little purple head among the long, wiry grass. Can any of your readers inform me if my hypothesis is correct? J. B.

The counties assigned in the 'Cybele Britannica' as stations for the *Anemone Pulsatilla* are Berks, Oxford, Herts, Suffolk, Cambridgeshire, Bedford, Northampton, Gloucester, Lincoln, and York.

REMARKS

On Botanical Glossaries and Nomenclature.

Sir,—The subject of these remarks was suggested by a glance at the glossary prefixed to the 'British Botanist's Field-Book,' a work noticed at some length in the 'Phytologist' for June, 1857.

Several scientific terms and phrases are sanctioned by common usage, and are convenient as briefly describing what must, without their aid, be described by a sentence or *periphrasis.* Where judiciously employed, they are conducive both to brevity and precision. Their abuse only is the subject of the subjoined animadversions. The following canons or rules, it is respectfully submitted, might be generally observed in determining the expediency of employing technical terms. First, that when a scientific word has an English equivalent in common use, such equivalent should be used instead of the technical one. This practice would be conducive to elegance of diction and to intelligibility. Mr. Childs, in his 'Handbook,' professes to abstain as much as possible from the use of technical terms, yet employs in his nomenclature the terms *hermaphrodite* and *diclinous* quite unnecessarily, as our language has two words in common use which express more delicately and perspicuously what is understood by the *offensive* word *hermaphrodite,* and by the pedantic, barbarous word *diclinous.* Hermaphrodite, as applied to plants, expresses exactly what we mean by complete, or perfect; when applied to animals, it means just the reverse. A thing is complete in all its parts; a flower is complete when nothing can be added to it without marring its symmetry or its utility. A *hermaphrodite* is the exception among animals; it is the rule in the vegetable kingdom; and as Nature's works are generally considered perfect as to the beauty and design of their construction, the plants called hermaphrodite might be described as *complete* or *perfect* without any ambiguity, and with more elegance and delicacy than when characterized by the disagreeable term abovementioned, which might, out of deference to the fairer portion of the votaries of Flora, be cashiered without any perceptible inconvenience. The words *male* and *female,* as generally applied to *barren* and *fertile,* or to *incomplete* or *imperfect* blossoms, might also be discarded. Those who object to the terms *barren* and *fertile* as descriptive of what are called *male* and *female* flowers, might employ *staminiferous* and *pistilliferous,* especially if they like sesquipedalian words and entertain the vulgar maxim, *Omnia ignota pro magnificis habentur.* The term *diclinous* is exactly rendered by *incomplete* or *imperfect;* and, for the sake of the unlearned generally, one or other of these equivalents should take the place of the learned barbarism. A *second* canon or rule might be adopted, to the effect that *two* or *more* technical terms should never be employed to express *one* state, or one state with a modification. An attempt to describe with an undue amount of precision is too often subversive of the object of scientific description, which is always limited to groups of natural things, never to individuals. The terms *deflexed* and *decurved; reflexed, recurved; procumbent, decumbent,* and *prostrate; stolons, scions,* and *shoots; terete, tapering; sessile, sitting; dehiscent, opening,* etc., will illustrate what is meant. These pairs of epithets, or *leashes* (threes), are nearly synonymous. There is a distinction between a *curve* or *curvature* and a *flexure* or *crooking, bending* or *bowing:* a bending is probably a greater degree of curvature. But Nature does not always, even in the same object, never in a group of objects called species, genera, and orders, construct her *curves* or *flexures* of an equal number of degrees of declination, either from a vertical or a horizontal direction. *Decumbent, procumbent,* and *prostrate,* all mean the same state, only the first term expresses, in addition to the general sense of *being flat on the earth,* a rising up of its tip, an effort to assume a direction at right angles to the horizon, or a tendency to get at its normal state (perpendicular to the earth's surface). One of the terms would be amply sufficient. *Prostrate,* or *prostrate at the base,* when only the lower part of the stem was on the ground, would be sufficient; we could describe clearly enough without the other *two* terms. *Scions, stolons, shoots,* and *runners,* are employed indiscriminately to describe such prostrate rooting stems or branches as we find in *Violets, Strawberries,* etc. *Scions* and *shoots* indicate erect growth; *stolons* and *runners,* such as are horizontal, and close to the ground, and rooting. Two of them might be discarded. The states of *terete, sessile, dehiscent,* and *scabrous,* might be expressed by the commoner words, *tapering, sitting, opening,* and *rough.*

As a sample, the following are taken *at random* from a communication by the learned author of 'A Popular History of British Lichens.'

"*Apothecia* epithalline, scattered, rarely confluent, prominent, pulviniform or globose, normally smooth and black, sometimes green-pruinose, circumference agglutinated or free; ultimately falling out and leaving distinct cyphelloid foveolæ, etc." ... "Spores ovate-oblong (Körber describes them as soleæform or schuhsohlenförning [schuhsohlenförmig?]), two-locular, etc., ... loculi frequently containing one or two globular nuclei." Again: "Which (*laciniæ*) are sinuate-lacinulate, and the lacinulæ divaricate-angulose, with retuse extremities. They are epithalline, situated upon the ordinary thallus of *P. saxatilis,* etc." Again: "The most globular or hypertrophic specimens I have met with, etc."

I will leave the translation of these scientific phrases to their learned author, and beg to conclude by asking, what reason we have to marvel that science is unpopular when it is so often conveyed in similar repulsive phraseology?

ZOILOS.

FAVERSHAM PLANTS.

Plantæ rariores Favershamienses; communicated by the Rev. H. A. Stowell.

(*Continued from page* 106.)

[There is no particular occasion for offering an apology in behalf of the Faversham Plants, portions of which have appeared in several numbers of the 'Phytologist,' and at somewhat distant intervals. We think however that the reverend author of these valuable records of the Flora of his parish, and to whom we are greatly indebted both for his efficient aid and, above all, for his patience, does deserve at least that honourable mention should be made of his forbearance. Our readers are hereby reminded, that by means of these local lists they may ascertain how the *gaps* in their *herbaria* may be filled up. Botanists resident in the northern parts of our island are thus put in possession of important facts, viz. they ascertain what plants they *can* procure for themselves, and what are likely to be *desideratæ* in the *herbaria* of their Southern brethren.]

Myosotis repens. Marsh dykes near Graveney, and about Uplees; sparingly.

Myosotis sylvatica. Frequent in our woods.

Myosotis collina. Walls of Faversham, Graveney, and Rodmersham churchyards. Davington Priory.

Myosotis versicolor. Banks behind the little wood near the Four Oaks, and on Beacon Hill. Gravelly pasture near Davington Priory.

Lithospermum officinale. In the gravel-pit, Cockset Wood. Syndale Wood.

Lithospermum arvense. Cornfields near Newnham and Norton, and on Badging Down.

Symphytum officinale. Dykes in Luddenham, Ham, and Graveney marshes; but sparingly.

Borago officinalis. Near the ruins of Buckland Church. Near Rodmersham church.

Lycopsis arvensis. Banks about Stone Farm, and Hemhill. Cornfields between Luddenham and Oare.

Cynoglossum officinale. On the beach at Seasalter.

Echium vulgare. Bysing, Syndale, Cockset, and Badging woods.

Primula veris. In an old chalk-pit behind Ewell. Woods near Belmont.

Samolus Valerandi. Edges of dykes and wet places in the marshes.

Glaux maritima. Margins of the creeks; with *Armeria maritima* and *Statice Limonium.*

Plantago media. Banks and roadsides; chiefly on the chalk.

Plantago maritima below, and *P. Coronopus* upon, the sea-walls beside the creeks.

Chenopodium olidum, rubrum, and *ficifolium* are occasionally to be found on manure-heaps and rubbish about the town.

Chenopodium Bonus-Henricus. Under a wall near Rodmersham church.

Atriplex portulacoides. In the salt-marshes; abundantly.

Atriplex littoralis. Margin of Faversham Creek, with *A. patula* and *A. Babingtonii.*

Beta maritima. On the sea-wall near Graveney, but rarely.

Salsola Kali. On the beach at Seasalter.

Schoberia maritima and *Salicornia herbacea.* In the salt-marshes; abundantly.

Polygonum lapathifolium. Fields below Hemhill church.

Polygonum laxum. Field between Bysing Wood and Mr. Carter's Oast.

Polygonum Hydropiper. Wet places by the roadside in Bysing and Perry woods.

Polgonum dumetorum. Lower part of Bysing Wood, towards Luddenham Vicarage; sparingly.

Rumex Hydrolapathum. Davington Osiers. Ham and Graveney marsh dykes.

Rumex aquaticus. Swampy ground below Bysing Wood, and in a ditch by the roadside near Luddenham Vicarage. [Is this *R. aquaticus?* If so, its range in Britain is much greater than is generally supposed.]

Rumex pulcher. Homestall road. Beacon Hill.

Daphne Laureola. Bysing Wood. Sandbanks Wood.

Euphorbia exigua. Cornfields; frequent.

Euphorbia amygdaloides. Frequent in all our woods.

Mercurialis annua. By the pathside through Preston meadow.

Parietaria officinalis. Walls of Davington Priory. Faversham churchyard, west wall.

Humulus Lupulus. Hedge below Bysing Wood, on the Luddenham Road. Behind Sandbanks Wood.

Carpinus Betulus. Syndale and Lees Court Parks. Hemhill and Perry Woods.

Salix purpurea and *Helix.* Davington Osiers.

Salix Caprea. Bysing, Badging, and Hemhill woods.

Salix ambigua. By a stream in Hemhill wood.

Juniperus communis. Hedges about Whitehill and Belmont.

Taxus baccata. Below Whitehill. Selling Churchyard.

Neottia Nidus-avis. Woods about Belmont and Lees Court. Dully Wood.

Listera ovata. Bysing, Cockset, and Hemhill woods.

Epipactis grandiflora. Mr. Giraud's wood, at Cades. Fir-plantations and woods about Lees Court and Belmont. Dully Wood.

Orchis Morio. Cades Wood and the meadow below. Swampy ground below 'the Pulpit,' Perry Wood.

Orchis mascula. Bysing Wood. Woods near the Oaks. Wood between Shepherds, Fostal and Perry Wood.

Orchis fusca. Syndale Wood; very rarely. Woods and banks about Lees Court. Dully Wood.

Orchis pyramidalis. Cockset Wood, about the gravel-pit. Badging Wood. Larch-plantation, by the steps, on the path between Ovens Court and Selling church. Woods about Lees Court and Belmont.

Orchis latifolia. Davington Osiers. Swamp in Ham Marshes, near Hollyshore.

Orchis maculata. In all our woods.

Gymnadenia conopsea. Woods near Belmont, and about Newnham. Lees Court Park.

Habenaria bifolia. Cockset, Syndale, and Badging woods. Woods about Lees Court and Belmont.*

Aceras anthropophora. Lees Court Park. Dully Wood. Lane between Whitehill and Ospringe Vicarage.

Ophrys apifera. Lees Court Park. Woods near Belmont; sparingly.

Ophrys muscifera. Syndale, Cockset, Sandbanks, and Dully woods. Mr. Giraud's wood, by Cades. Woods about Belmont and Lees Court.

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* In the woods and Fir-plantation on either side of the Office-road to Belmont, *Epipactis grandiflora*, *Habenaria bifolia*, and *Orchis maculata* attain a uxuriance of growth such as I have never seen approached elsewhere.

Iris Pseudacorus. Davington Osiers. Marsh dykes occasionally.

Allium vineale. By the path from the Brents to Ham Farm.

Allium ursinum. Little wood adjoining Dully Wood. Woods near Lees Court.

Ruscus aculeatus. Near the gravel-pit, Cockset Wood. In hedges near the Oaks, and near Badging Wood. Porter's Lane, at the Whitehill end.

Tamus communis. Bysing and Syndale Woods. Porter's Lane. Road from Selling to Brendley.

Hydrocharis Morsus-ranæ. Ham, Clapgate, and Gravency marshes, in the dykes.

HERTS FLORA.

Additional Supplement to the Flora Hertfordiensis. By the REV. R. H. WEBB, Rector of Essendon, Herts. 1851–57.

(This mark * prefixed to the *district* denotes that the plant has been discovered there since the publication of the Supplement to the 'Flora Hertfordiensis' in April, 1851; * prefixed to the *plant* shows that it is altogether new to the Flora. The note (!) following the *station* signifies that the plant has been seen growing; — following the *authority*, a specimen gathered by the same.)

p. 1. *Thalictrum flavum.* 1. Meads, near the Lea, below Hatfield Park, 1845–56: C. C.

p. 3. *Anemone nemorosa.* *4. Thrift Wood, Westmill; Graves wood: L. S.!

p. 4. *Myosurus minimus.* *2. Frith Garden (a weed), near Welwyn: C. C. *8. The Rookery, near Watford: E. S. 1. Cornfields, Hollwell Farm, Hatfield, 1857.†

p. 6. *Ranunculus Lingua.* *6. Totteridge Green, and other ponds in the neighbourhood! L. P.

p. 6. *Ranunculus Flammula, β, reptans,* Bab. 1. Near Warren Wood, Essendon; pond near Popes, Hatfield, 1856: C. C.

p. 6. **Ranunculus floribundus,* Bab. 1. Ponds near Hatfield Hyde! 1855: C. C. Bab.

p. 9. *Aquilegia vulgaris.* 9. In a hedge by the Common-side, near Berkhampstead: T. G. L.!

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† I observe this plant abundant in several fields this year (1857). Is it anything peculiar in the season? I had not seen it since 1851, I think, when it was plentiful.

p. 16. *Corydalis solida.* 6. In Puget's Wood, Totteridge: J. R. M.

p. 17. *Fumaria parviflora, Vaillantii,* and *micrantha.* *12. Burloes Hill, near Royston, abundant, June 7, 1853: C. C. Bab.

p. 17. *Fumaria capreolata.* *6. Hoddesdon, near the Rye House, 1855.

p. 19. *Nasturtium amphibium.* *1. Brook between Essendon and West End: G. B. Wollaston, 1851. Observed since, sparingly.

p. 22. *Cardamine sylvatica.* *9. Near Bourne End: T. G. L.!

p. 26. *Sisymbrium thalianum.* *9. Frequent near Berkhampstead: T. G. L.

p. 27. *Erysimum cheiranthoides.* 1. Hatfield railway-station, plentiful near the coal-sheds; near the Brewhouse Farm, between Hatfield wood-side and Wild Hill. *7. Field near Colney Heath, 1855.

p. 27. *Camelina sativa.* 1. With a crop of *Linum,* opposite the timber-yard, Panshanger, 1855; Lawn, Essendon Place, with Grass seeds.

p. 29. *Lepidium campestre.* 1. By the footpath from Essendon to Hatfield; in a field east of Kibes Green, Essendon. 6. Near the *Cicuta* station, p. 114, abundant, 1855.

p. 29. *Brassica campestris.* 4. Coles, Westmill: L. S.

p. 30. *Sinapis alba.* *5. Hadham Ford, 1856.

p. 34. *Viola hirta.* *7. Near the Warren toll-gate, N. Mimms, 1856.

p. 39. *Dianthus deltoides.* *6. Totteridge Green, back of Osmond's barn: J. R. M.

p. 39. *Saponaria officinalis.* 1. Essendon, with *Serratula,* p. 145: C. C.

p. 42. *Sagina procumbens.* *4. Coles: L. S.!

p. 43. **Sagina ciliata.* 1. Hatfield Park, north of the house; Hatfield wood-side, in front of Squire Church's house. 7. Colney Heath.

p. 43. *Mœnchia erecta.* 1 and 7. Hatfield wood-side and Grubb's Lane, 1856.

p. 47. *Cerastium arvense.* *8. On the chalk cutting near Watford Station: S. P.!

p. 48. *Malva moschata.* 4. Wyddial and Coles: L. S.

p. 54. *Geranium pusillum.* *7. Colney Heath, 1855.

p. 55. *Geranium columbinum.* *9. In a copse one mile south-east of Bourne End: T. G. L.! 7. Near Colney Heath.

p. 56. *Erodium cicutarium.* *7. Near Warren Gate, N. Mimms: Mr. Irvine, 1856.

p. 56. *Erodium moschatum.* 1. Near the Essendon National Schools, 1855. 6. Plentiful about the Almshouses, Barnet: L. P.

p. 59. *Oxalis Acetosella.* 4. Coles: L. S.!

p. 59. **Oxalis stricta.* 1. Apparently naturalized in the garden of the old Poor-house, Essendon.

p. 62. *Genista tinctoria.* 4. Near Capons, Wyddial: L. S.

p. 63. *Anthyllis Vulneraria.* *4. Roadside between Westmill and Buntingford: L. S.! 9. Near Bourne Grove and Bourne End: T, G. L.!

p. 66. *Trifolium striatum.* 7. The Wash, near Warren Gate, N. Mimms, 1856. 6. Totteridge Lane, with *Trifolium fragiferum:* J. R. M.!

p. 66. *Trifolium ochroleucum.* *4. At West Hill: L. S.!

p. 68. *Trifolium subterraneum.* *7. The Wash, near Warren Gate, N. Mimms, 1856. 6. 9. *9. Boxmoor: Mr. Irvine.

p. 68. *Trifolium fragiferum.* 4. Westmill: L. S.

p. 69. *Trifolium filiforme.* 7. The Wash, with *T. subterraneum.*

p. 73. *Vicia angustifolia.* *Bourne End: T. G. L.!

p. 73. *Ervum gracile.* *4. Between Coles and Cherry Green: L. S.!

p. 74. *Lathyrus sylvestris.* 4. Capons, Wyddial: L. S.

p. 75. *Lathyrus Nissolii.* 8. Hedgerow near Oxtrey: S. P.

p. 79. *Geum rivale.* *9. Meadows by the canal, east of Berkhampstead: T. G. L.!

p. 87. *Potentilla argentea.* 7. Near the Warren Gate, N. Mimms, 1856.

p. 91. *Alchemilla vulgaris.* 6. Totteridge Park, *very large!* Growing in the same place is an abundance of *Lilium Martagon,* known to have been there more than a hundred years! J. R. M. *7. Potterels, N. Mimms.

p. 94. *Pyrus Aria.* 9. North-east side of Bourne End Grove: T. G. L.!

p. 94. *Pyrus communis.* 1. Lane from the Hertford and Hatfield road to the Holwell Woods, 1857.

p. 96. *Epilobium angustifolium.* 1. Below the Essendon Bury chalk-pit: C. C., 1854.

p. 96. *Epilobium angustifolium.* 2. Brockett Park: C. C.

p. 96. *Epilobium roseum.* *4. Between Cherry Green and Cotterel: L. S.

p. 101. *Callitriche pedunculata.* *8. River between Watford and Hamper Mill: E. S.

p. 109. *Ribes Grossularia.* 4. Coles: L. S.

p. 110. *Ribes rubrum.* *4. Thrift and Milcroft's woods: L. S.!

p. 111. *Saxifraga tridactylites.* *7. N. Mimms churchyard, 1856. 6. 9.

p. 117. *Ægopodium Podagraria.* 4. Coles: L. S.!

p. 117. *Carum Carui.* 9. Railway bank near Bourne End: T. G. L.

p. 126. *Torilis nodosa.* 4. Near Westmill: L. S.!

p. 130. *Adoxa Moschatellina.* 1. Near the river in Tewin Water Park, 1857. *4. On the Rib, near Coles: L. S.!

p. 133. *Sambucus nigra.* 1. A variety with white fruit, grows at Essendon, West End, 1855.

p. 136. *Viscum album.* *4. Coles: L. S.!

p. 139. *Galium tricorne.* 6. Near the Rye House, Hoddesdon, plentiful, 1855.

p. 140. *Fedia olitoria.* *7. Near Colney Heath, 1855.

p. 143. *Dipsacus pilosus.* 4. Milcroft's Wood, Coles; roadside between Buntingford and Wyddial: L. S.

p. 143. *Scabiosa Columbaria.* *8. Chipperfield: E. S.

p. 146. *Centaurea Cyanus.* *4. Wyddial: L. S.

p. 147. *Centaurea solstitialis.* 1. Essendon Glebe, among Lucerne, 1852.

p. 150. *Onopordum Acanthium.* 1. Near Bayfordbury Farm, 1856.

p. 151. *Silybum Marianum.* 1. Near the Red Lion, Hatfield, 1856.

p. 156. *Lactuca virosa.* *1. Essendon, opposite the Rectory; *sown;* in the plantation behind the cottagers' allotments, Hertingfordbury: C. C.! *6. Roadside between Lion's-down and East Barnet: L. P.

p. 156. *Prenanthes muralis.* *4. Wyddial Hall: L. S.!

p. 158. *Crepis biennis.* *Near Bourne End: T. G. L.!

p. 159. *Hieracium sylvaticum.* 7. Colney Heath, 1855.

p. 162. *Petasites vulgaris.* 4. River Rib, Coles: L. S.

p. 165. *Conyza squarrosa.* *4. Near Buntingford: L. S.!

p. 166. *Bidens tripartita.* 4. Pond at Wyddial: L. S.

p. 171. *Artemisia Absinthium.* Stony Hill, between Bengeo and Sacomb, 1851.

p. 172. *Tanacetum vulgare.* 1. Tewin Lower Green, 1851. 2. Between Foxley's Farm and Ayott Green.

p. 361. *Filago spathulata.* 1. Near Letty Green, Hertingfordbury. *6. Hoddesdon, near the Rye House, 1855.

p. 176. *Campanula glomerata.* 2. Brockett Park: C. C. 5. Near Hadham Ford: Master T. Webb, 1856. 7. 3.

p. 176. *Jasione montana.* *7. Field near Colney Heath! J. Church, Jun.

p. 178. *Campanula Rapunculus.* 8. Crossley Green: S. P.!

p. 179. *Campanula hybrida.* 1. Bedwell Park Farm. 10. Cornfield east of Batchwood, St. Albans: C. H.!

p. 182. *Monotropa Hypopitys.* *4. Thriftwood, Westmill: L. S.! *8. Wood at Buxhill, near Watford: E. S.! 9. Abundantly in the Hare's-foot Woods towards Harratt's End: T. G. L.!

p. 186. **Villarsia nymphæoides.* 6. Ponds on Totteridge Green! with *Hottonia* and *Menyanthes:* L. P.

p. 187. *Chlora perfoliata.* 1. Essendon West End, in a field called Lower Braddles, plentiful, 1856! C. C.

p. 189. *Erythræa Centaurium.* 4. Wyddial: L. S.

p. 191. *Polemonium cæruleum.* *8. Near the Colne, in a meadow between Holywell and Brightwell's Farm: E. S.!

p. 193. *Cuscuta Trifolii.* 1. On Bedwell Park Farm in 1852 and 1856; near How clay-pits, Bayford, 1852.

p. 197. **Pulmonaria officinalis* (after *Echium*). 4. Coles: L. S.!

p. 201. *Atropa Belladonna.* 2. Brockett Park: C. C.

p. 202. *Hyoscyamus niger.* 1. Hatfield, near the Red Lion, 1856.

p. 203. *Verbascum Lychnitis.* *2. Brockett Park and the borders: C. C.

p. 362, Appendix. *Verbascum Blattaria.* 1. Essendon Glebe Wood! 1856: C. C.

p. 362, Appendix. *Verbascum virgatum.* *2. Plantations about Brockett Park, 1852: C. C.

p. 205. *Orobanche minor.* *11. Near Hitchin: Prof. Bentley.

p. 206. *Lathræa Squamaria.* 11. Near Chapel Foot, 1853: M. Balls.

p. 206. *Lathræa Squamaria.* *1. New Hatfield House, on the London side of the Privy Garden, 1857! Marquis of Salisbury.

p. 207. *Digitalis purpurea.* 1. Var. *alb.* Essendon Glebe Wood, 1856.

p. 209. *Linaria repens.* 1. Single plant between Essendon and West End, 1854: L. P.!

p. 209. *Linaria minor.* *4. Wyddial and Westmill: L. S.!

p. 217. *Veronica officinalis.* *4. Dry bank at Coles: L. S.!

p. 217. *Veronica Buxbaumii.* 10. Field east of Birch Wood, St. Albans: C. H.

p. 218. *Veronica hederifolia.* *9. Bourne End: T. G. L.! 1851.

p. 219. *Mentha sylvestris.* 1. Near the bridge by Holwell Farm: C. C.

p. 219. *Mentha piperita.* *4. Brook End, Westmill: L. S.!

p. 221. *Lycopus europæus.* 4. Wyddial: L. S.

p. 224. *Scutellaria galericulata.* *4. Wyddial: L. S.

p. 228. *Galeopsis versicolor.* 1. Essendon, in a field called Warren-bushes, on Bedwell Park Farm! 1856: C. C. *4. Wyddial, 1848: L. S.

p. 229. *Marrubium vulgare.* *7. Colney Heath, 1855.

p. 235. *Primula elatior.* *4. Coles, and between Westmill and Stonebury: L. S.

p. 235. *Hottonia palustris.* 6. Ponds on Totteridge Green! J. R. M.

p. 240. *Chenopodium hybridum.* *2. Welwyn, on the banks of the Maran, 1854.

p. 244. *Rumex pratensis.* 6. Marsh Lane, Hoddesdon, 1855.

p. 247. *Polygonum Bistorta.* 1. Meadows near the Brewhouse Farm, between Hatfield Woodside and Wild Hill, 1851. 6. Chapel Field and Puget's Wood, Totteridge: J. R. M.

p. 250. *Daphne Laureola.* 4. Hedge between Aspenden Hall and Buttermilk House: L. S.

p. 265. *Alnus glutinosa.* 4. Banks of the Rib, Coles: L. S.!

p. 275. *Potamogeton crispus.* *4. Coles, in a pond: L. S.!

p. 276. *Lemna trisulca.* *7. Colney Heath, 1855.

p. 284. **Anacharis Alsinastrum.* 8. Near Watford. "The river is nearly choked in the last three or four years:" E. S. 1856.

p. 285. *Orchis mascula.* 4. Coles: L. S.

p. 290. *Habenaria chlorantha.* 1. Plentiful in a wood between Essendon W. End, and Kibes Green, 1855. 4. Coles and Wyddial: L. S.

p. 291. *Ophrys apifera.* 1. Essendon West End, 1852. 4. Wyddial, 1848: L. S.

p. 292. *Ophrys muscifera.* 9. Wood one mile south-east of Bourne End, 1851: T. G. L.!

p. 292. *Neottia spiralis.* *8. Common Wood near Sarratt and Chipperfield: S. P.

p. 294. *Listera Nidus-avis.* 1. Bedwell Park Belt, near Little Berkhampstead Lane: I. C., jun., 1856.

p. 295. *Epipactis grandiflora.* 9. In the Haresfoot Woods: T. G. L.!

p. 297. *Iris Pseudacorus.* 4. At Coles: L. S.

p. 299. *Narcissus Pseudo-Narcissus.* 1. Woolmer's Park and Letty Green.

p. 300. *Narcissus biflorus.* *6. Davis's Farm, Totteridge: J. R. M.

p. 300. *Galanthus nivalis.* *In a hedge at the back of Mr. Mackay's, Totteridge Green, "as if wild:" J. R. M. *4. In Milcroft's Wood, Coles: L. S.

p. 301. *Paris quadrifolia.* 1. Bayford Wood, plentiful, 1855: C. C. 4. Capons, Wyddial; Thrift, Coles: L. S.

p. 303. *Ruscus aculeatus.* 6. Roadside between Cooper's Lane and the Hook, 1857.

p. 303. **Lilium Martagon.* 6. Totteridge Park. Ascertained to have been there not less than 100 years. 1855! J. R. M.

p. 303. **Tulipa sylvestris.* 4. In the Grove at Wyddial Hall. "The Grove at Wyddial, which is chalky in many places, is in many places covered with it, but this is the only one I could find going to flower." May 7th, 1856: L. S.!

p. 303. *Hyacinthus nonscriptus,* var. *alb.* 1. Essendon Copse, W. End, with *Habenaria.*

p. 304. *Ornithogalum umbellatum.* *2. Brockett Park, 1852: C. C.

p. 305. *Allium ursinum.* 9. Near Bourne End: T. G. L.!

p. 334. *Catabrosa aquatica.* 9. Near Berkhampstead, and at Boxmoor: T. G. L.!

p. 339. *Bromus erectus.* 9. Near Haxters End Farm; near Berkhampstead: T. G. L.!

p. 340. *Lolium temulentum*. 5. Hadham Ford, 1856. 1. Bedwell Park Farm, 1856: C. C.!

p. 341. *Triticum caninum*. 5. Hadham Ford, 1856.

p. 342. *Elymus europæus*. 9. Bourne End; and in a copse half a mile from Bourne End, by the Bovingdon Lane: T. G. L.!

p. 347. *Ophioglossum vulgatum*. *9. Meadows between Berkhampstead and Bourne End: T. G. L.! 4. Coles; Wyddial Hall; Hammel's Park: L. S.

p. 348. *Asplenium Trichomanes*. 2. Brockett Hall, house and garden walls: C. C.

p. 349. *Asplenium Ruta-muraria*. 2. On the house and garden walls at Brockett, 1852: C. C.

p. 350. *Ceterach officinarum*. *11. "On an old wall at Graveley, and, as I believe, spontaneously:" Prof. Bentley.

p. 351. *Scolopendrium vulgare*. 1. Hill End Farm, Essendon W. End, on the walk above the gateway, 1855. 2. β, *multifidum*, on Brockett Hall House, single plant: C. C. 4. Two hedges at West Mill: L. S.! 1. South entrance of brook running through Camfield: P. L.

p. 352. *Aspidium angulare*. Essendon W. End, with *A. lobatum*, 1856.

BRITISH HIERACIA.

Remarks on some Species of British Hieracia.

By JAMES BACKHOUSE, Jun.

"*Hieracium cerinthoides*."—This name must, I believe, now be discontinued, as denoting a *British* species. At page 39 of my Monograph I stated my suspicion that the plant recognized by Fries as *H. cerinthoides* would prove distinct from the Pyrenean plant, and that I then accepted the *name* on his authority. I was unwilling to adopt a fresh name when there was not strong evidence of difference from the plant already recognized by Continental authors. Professor Fries has however lately informed me that he concurs in my opinion as to the distinctness of the two; so that, while leaving others to adopt such name as they think best, I shall in future regard the β, *anglicum* of my Monograph as the *typical form*, under the name of HIERACIUM ANGLICUM, and call what is there described as the typical form, *H. anglicum*, β, *amplexicaule*.

"*Hieracium stelligerum.*"—On the continued and very decided opinion of Fries, that our plant, although exhibiting some of the characteristics of *H. stelligerum*, is unquestionably distinct from that species, I shall for the future adopt the original name of H. FLOCCULOSUM.

"*Hieracium rigidum.*"—Continued observation of this plant only confirms my impression that it is not specifically distinct from *H. corymbosum* (that is, the Braemar plant recognized by Fries as "typical *H. corymbosum*"). Though not yet fully prepared to discontinue the name, my strong belief is, that our plant is *not* any form of *H. rigidum*, Fries, which I doubt being a British species.

"*Hieracium Gibsoni.*"—In reply to the observations upon this plant in the 'Phytologist' for April 1857, page 73, I may state by way of explanation, that when using the words "original discoverer," I did not at all mean to imply that I supposed the late Samuel Gibson to have been the first person who *noticed* the plant, but the one who first challenged it as a distinct and unnamed species. The fact of its having been known long before, first associated with *Hypochœris maculata*, and afterwards with various species of *Hieracium* (incorrectly), does not, I apprehend, rightly constitute "discovery" in a scientific sense. Twenty years before *Carex paradoxa* was "discovered" as a British plant, my father gathered specimens of it in the vicinity of York, and after having failed fully to satisfy himself that it was a form of *C. teretiuscula*, preserved specimens of it for his herbarium, referring them to the latter species with a ? attached, not having then in his possession any work describing the Continental *C. paradoxa*. Numerous other similar instances might be named; but no one will, I think, be disposed to regard the first finders of these plants as their "discoverers." Perhaps it would have been better had I used the words, "who first detected it as a distinct and unnamed species." These few remarks will however explain what I wished to convey. Respecting its possible identity with *H. pallidum*, or *H. cæsium*, it may perhaps be a fitting place just to say that *H. cæsium* is very abundant in the same locality and district, and that *H. pallidum* also occurs sparingly. The latter (*H. pallidum*) very frequently has spotted or blotched leaves: but so many plants of this genus exhibit this character more or less, that I believe it is unsafe to allow ourselves to be much influenced by it in attempting to determine species, except when combined with other strong distinguishing features, such as are distinctly observable in *H. Gibsoni,* and which, according to the best of my ability, were clearly defined in my Monograph.

York, May, 1857.

BOTANICAL NOTES, NOTICES, AND QUERIES.

On the Growth of the Ophrydeæ.

The fact of the appearance of the Bee Orchis in such abundance in a field recently reclaimed from a subjection of forty years to the plough (see 'Phytologist,' vol. ii. p. 114), may in some degree be explained by the peculiar mode of growth of the *Ophrydeæ*, a subject which has lately been investigated by M. Fabre, who gives an account of his observations in the 'Annales des Sciences Naturelles,' ser. 4, vol. v. p. 163. It is there shown that the flowering-shoots are only formed after an indefinite period, during which the growth or extension of the plant is effected by the formation of terminal tubers or buds, and its multiplication by the production of axillary tubers. "After a hitherto indeterminate number of such annual evolutions, the axis, the descendant of that produced by the germination of the seed, is terminated by a leafy shoot, destitute of tuber and of flowers. The axillary tubers are then endowed with the power of reproducing and multiplying the plant and at length of producing the floral form, after several generations of buds." Thus is effected a most curious instance of the "alternation of generations," and one which certainly contributes to the explanation of the fact noticed by Mr. Oxenden. Maxwell T. Masters.

Cardamine pratensis.

"I found (May 28th, 1845) in a moory meadow by the Medina, below Rookley, a solitary specimen of *C. pratensis,* affording a singular instance of abnormal development. On the lower part of the corymb were several seed-vessels on pedicels changed from their usual linear to an ovate-elliptical figure, so as to resemble the short fruit of plants belonging to the siliculose section of this Order. These, on being opened, were found to contain petals of the usual colour, which in the pods above had burst from their confinement, and appeared as semidouble flowers, the valves of the pod answering to the true calyx. At the summit of the stem the flowers had the usual appearance, except that the stamens were changed into petals; and on opening the ovarium of the highest blossom, no ovules were discoverable amongst the mass of petaloid laminæ with which the cavity was filled. The lowermost pedicellate pods had doubtless been at first surrounded by the regular floral envelopes, but from some cause had not emitted them at the sutures like the rest. From their verticillate arrangement it is evident that these petaloid expansions were not transformed seeds, but simply a development of the common axis within the ovary into an abortive whorl of floral organs, besides which there were evident rudiments both of stamens and germen in the centre of the bundle."—*Dr. Bromfield's 'Flora Vectensis,' pp.* 34, 35.

BARBAREA PRÆCOX.

"This species is generally thought to have been introduced to Europe from the New World, whence the names of American or Belleisle Cress (from the Straits of that name between Labrador and Newfoundland). Be that as it may, no plant is more thoroughly naturalized amongst us than the present, and in no part of Britain perhaps does it abound more than in this island. In America, *Barbarea præcox* extends beyond the Arctic Circle. It affords an excellent spring salad, very superior to the common Winter Cress, as was remarked to me by my friend the Rev. William Darwin Fox, who, having been accustomed to the use of the latter in Derbyshire, on coming to reside in this island having unknowingly substituted the former and more abundant species here, though puzzled to account for the difference, was immediately sensible of having made an exchange for the better. The taste is much more pungent and Cress-like, and Mr. R. Loe of Newchurch tells me it is often substituted by the people of this island for the common Water Cress, being known by the opposite cognomen of Land Cress."—*Idem.*

BOTANY OF THE LAKES.

The results of Mr. Woods's excursion are that "the mountains about the Lakes of Cumberland and Westmoreland offer by no means a rich harvest to the botanist; but it is well," he adds, "to know what places are unproductive, in order not to lose time in examining what has been already examined in vain. The points to which I would direct the attention of the future tourist are some micaceous rocks on the north side of Skiddaw, at about half the ascent. . . . Next to these in point of interest is the district about Helvellyn, and to the south and south-east of that mountain lying between the roads from Wythburn to Ambleside and from Ambleside to Patterdale. . . . Perhaps the mountains above Coniston might be visited with advantage, and also those to the right of the road over Kirkstone from Ambleside to Patterdale. . . . I would recommend any botanist who wishes to ascend Cross Fell to take the little Gill which separates Cross Fell from Dun Fell, and Cumberland from Westmoreland."

"*Geranium pyrenaicum* is a plant which occurs in several places in the neighbourhood of towns, especially in a light but fertile soil, and it seems to be increasing, but I doubt if it be anywhere an original plant of the country."—JOS. WOODS, F.L.S., *in Com. Bot. Mag.* vol. i. p. 295.

This extract, though not from a very recent publication, may be *new* to some of our readers. We publish it for the benefit of Lake tourists, to whom it may be useful; and we also venture to hint that if they find any novelties in the botanical department, we hope they will not forget the 'Phytologist.'

HICKORY.

"The Indians of Florida hold in great esteem all kinds of sweet Hickory-nuts. They crack the nuts and beat them in mortars, then boil in water and save the oil. But the most favourite dish the Indians have among them is corn-drink seasoned with Hickory-nut oil. They pick out the kernels, beat them to a paste, and boil with Indian Corn-flour, which being seasoned with a lixivium made of pea-straw ashes, gives it a consistence something like cream or rich new milk, and is called by the traders Hickory-milk."—BARTRAM, M. S., *Gard. Chron.* 1857, *p.* 56.

LAMIUM ALBUM.

Dr. Bromfield, in 'Flora Vectensis,' describes the roots of *Lamium album* as "emitting rhizomata in all directions, which again take root at the joints and send up fresh stems annually." Yet the same accurate observer places the sign of an annual (☉) after the description of the time of its inflorescence;—a printer's blunder? "With a wide distribution, *L. album* is yet a somewhat local species; nor is it by any means universally diffused over the Isle of Wight. At Great Yarmouth, as I learn from Mr. Dawson Turner, it is amongst the rarest plants."—*Fl. Vect.*

HERNIARIA GLABRA.

"By a strange misquotation in the 'English Flora,' poor Hudson is represented as making our *Glaux* a variety of *Herniaria glabra*, a blunder the latter is wholly guiltless of, having fully described that plant, *G. maritima*, in its proper place. The synonyms and references to Ray and Petiver relate to *H. ciliata* of Babington."—DR. BROMFIELD, *in Fl. Vect.*

LONG PURPLES.

The flower called by Shakespeare "Long Purples," and which formed part of Ophelia's garland (see Hamlet, Act V.), I understand to be the *Orchis mascula*. Can any of your readers inform me if the name "Long Purples" is mentioned in any, and which, of the Herbals of Shakespeare's time? and is the same flower also called Dead Men's Fingers? S. B.

ROWAN-TREE.

(*Pyrus Aucuparia.*)

Can you refer me to any old work on trees which mentions this as a charm against witches? Some writers say it is customary in Wales to plant the tree in churchyards. Are there any churchyards in England in which the Rowan-tree is planted? The common people in parts of Oxfordshire speak of the Wych Elm as a charm against witches, and that a person under the spell of witchcraft will be cured if struck nine times with a branch of this tree. Does any work which describes this Elm mention this property? S. B.

SCUTELLARIA MINOR.

Dr. Bromfield, in his excellent 'Flora Vectensis,' states that the height of this plant seldom exceeds 4–10 inches, "except when drawn up amongst herbage to almost twice that height." In a wet grassy part of Parkhurst Forest this plant was observed, in August 1853, one or two yards high, of a branched, straggling habit. It was no variety, but a genuine form of *Scutellaria minor;* taller however than any example of *S. galericulata* ever noticed by, Mr. Editor, your humble servant, A. M.

PLANTS collected near Parson's Green, October 14th, 1856, by A. I., Chelsea:—

Melissa officinalis between Little Chelsea and Parson's Green. *Anagallis arvensis*, var. *rubra*. *Hyoscyamus niger*. *Verbascum Thapsus*. *Medicago denticulata*. *Mercurialis ambigua*, Linn. fil. A variety of *M. annua*: Dr. Bromfield, in 'Flora Vectensis,' remarks that this "is a common form in the south of Europe, and has been noticed growing plentifully in the Channel Islands by Messrs. Babington and Christy. The younger Linnæus considered it a distinct species; but though very different in appearance, in some respects, it is certainly, as De Candolle remarks, but a variety—and not a very permanent one either—of *M. annua*." *Reseda Luteola*. *R. alba* occurs here and there about Brompton and Chelsea. *Potentilla hirta*, a foreign species, is spreading in a waste part, where rubbish is laid down at Parson's Green.

SCABIOSA SUCCISA.

The first appearance of this plant in flower is the earliest but surest token that, whilst nature wears yet an aspect green and fair, the noontide prime of the year has departed, and that ere long the "sere and yellow leaf" will give true but timely warning of the "dim, declining days" that must succeed its fall, etc.—DR. BROMFIELD, *in Fl. Vect.*

CARDUUS LANCEOLATUS.

To none of the genus is the motto "Nemo me impune lacessit" more applicable than to this species, from the extreme pungency of its long and formidable prickles.—DR. BROMFIELD, *in Fl. Vect.*

VIBURNUM OPULUS.

"Torrey and Gray reduce the North American *Viburnum edule* and *V. Oxycoccus* to varieties of our European *V. Opulus*, yet it seems hardly credible that the same species should produce in one country an agreeably-flavoured, and in another a nauseously-tasting fruit." (Dr. Bromfield, in 'Flora Vectensis.') Botanists believe that the Crab and the Ribstone Pippin are produced on trees of the same species; but the latter is delicious, the former uneatable. CENSOR.

Communications have been received from

Maxwell T. Masters; S. W.; G.; Rev. W. L. Williams; R. K.; Ignoramus; James Backhouse, jun.; B. G. B.; Geo. B. Wollaston; James Forbes Young, F.L.S.; W. P.; George Hunt; William Mitten, A.L.S.; M. T. M.; Sydney Beisly; George Jordan; R. M. Stark; J. F. Y.; Geo. Lawson, F.B.S.E.

BOOKS RECEIVED FOR REVIEW.

Stark's Management of the Marine Aquarium.
Moore's Index Filicum, Part III.

ERRATUM.

'Phytologist,' vol. ii. new series, p. 124, line 6 from bottom, *omit* 'inches long.'

OBSERVATIONS ON THALICTRUM MINUS

and its Allies, which inhabit Britain.

By J. G. Baker.

Upon studying carefully the plants given in the 'Supplement to the Yorkshire Flora,' under *Thalictrum flexuosum*, I find that they represent, not only the true *flexuosum* of authors, but also two other species, which appear to possess well-marked and permanent characteristics, viz. *T. eminens* and *T. calcareum* of Jordan. They are both elaborately passed under review in the fifth fragment of Jordan's 'Plantes Nouvelles, Rares, ou Critiques;' and forcible descriptions of the other British species, with apiculate anthers, may be found in various works of recent authors, especially the 'Summa Vegetabilium Scandinaviæ' of Fries; but as it is probable that a large proportion of the readers of the 'Phytologist' have not access to these, and as the allies of *minus* are only imperfectly understood by many of our botanists, it may not be deemed a work of supererogation to attempt here a cursory sketch of the series.

The genuine *T. minus* is common enough amongst the sandhills along the coast-line of most of the counties from Sutherland southward, to the central part of England; inland it inhabits the chalk district, and various hilly tracts of more or less calcareous nature; but probably it should be considered as a doubtful point whether many or most of the more elevated stations which have been reported, really produce the true plant. In a wild state the stem seldom exceeds a foot in height, which is considerably shorter than in any of the others. On the sandhills it is strong, stout, deeply striated, flexuose, and much branched; elsewhere erect or suberect, and usually more slender and graceful; the leaves do not descend to the base of the stem, and mostly become much diminished before they reach the panicle. On the coast they are full green on the upper surface, glaucous and glandular beneath; the auricles of the stipules are spreading, not inflexed, in my specimens; when it attains a fair degree of development, the lower branches of the panicle spread from the stem at an angle of ninety degrees or more; the carpels are oblong-fusiform in shape, somewhat compressed, slightly oblique, larger in size than in any of the others.

T. flexuosum is apparently a plant of stream-sides and damp fields. The British specimens preserved in my collection are from the following localities, viz.:—*Perthshire:* banks of Loch Tay, *Mr. Scott. Fifeshire:* North Queensferry, *John T. Syme. Dumfriesshire:* banks of the Nith, near Dumfries, *Mr. Cruickshanks. Lake District:* shores of Ulswater, and several other places, *D. Oliver, etc. Durham:* about the Tees in several places. *Yorkshire:* by the Tees at Holwick, and lower down, and on the south side of the Wharfe at Thorp Arch. Doubtless this is the plant which most of the stations, recorded for *T. majus,* produce: the stem attains a height of from 1½ to 3 feet, and is erect or suberect in habit, firm, usually glabrous, moderately flexuose, and prominently striated; the leaves descend to the base of the stem, and ascend amongst the lower branches of the panicle; the lower leaves are large, broad, and wide-spreading, their segments blunt, pointed, and often heart-shaped at the base; the auricles of the lower stipules embrace the stem, those of the upper, spread as in the preceding; the panicle is ample, and much elongated, the lower branches moderately flexuose, spreading from the stem at an angle of about forty-five degrees; the carpels are more oblique, broader below, and much smaller than in the preceding.

The only British stations for *T. eminens* with which I am acquainted, are both in West Yorkshire: Malham Cove, in the valley of the Aire, and Bolton Woods, in the valley of the Wharfe. This species much resembles *T. flexuosum* in habit of growth, but may be known by the following characters:—The stem is more slender, and somewhat shorter; the leaves are smaller in general outline, not ascending so much into the panicle as in the other, and their segments are narrower and sharper; the branches of the panicle are unusually flexuose, peculiarly irregular, diffuse, and few-flowered; the pedicels are arched at flowering-time; the carpels are equally compressed and oblique, but rather smaller and narrower.

T. calcareum was found several years ago by Mr. Ball, on Ben Bulben, in Sligo (*vide* Bot. Gazette), and the specimens of that gentleman were seen and authenticated by M. Jordan. To the courtesy of Mr. G. S. Brady I have been indebted for a specimen of the Ben Bulben plant; and have what appears to be the same, from Honister Crag, in Cumberland (coll. D. Oliver); Malham Cove, West Yorkshire (J. Dugdale); and also from amongst limestone rocks at Gordale Scar, near Malham, gathered by myself in the autumn of 1855. The stem is erect, firm, flexuose, and striated, rather longer than in the slender, erect form of *minus*, but shorter than in any of the others, with the leaves, as in *minus*, not descending to its base, and also becoming much diminished before they reach the panicle; in substance the segments of the leaves are thicker than in the others, in shape moderately broad and blunt in the lower leaves, narrower and sharper in the upper; the auricles of the stipules are short and adpressed; the panicle is moderate in size, its branches in fruit comparatively short and stiff, the lower spreading from the stem at an angle of about forty-five degrees; the carpels are small, in shape about twice as long as broad, slightly compressed and oblique. In some of my British specimens the leaves are glandular on the under surface; in an example collected by M. Bourgeau on the Sierra Nevada, labelled *T. pubescens*, Schreb., the stem and leaves are thickly covered with glands.

With *T. saxatile* I have not had the good fortune to make an acquaintance, except through the medium of descriptions; but these stamp it as a plant which there is not much risk of confusing with any of the others; its tall, rigid, scarcely striated stem, leafy to the base, and short-ovate, equally rounded carpels, furnish excellent diagnostic characteristics.

BOTANICAL SKETCHES.

To the Editor of the 'Phytologist.'

As I believe short accounts of botanical trips are generally acceptable to the 'Phytologist,' I have thought that although my excursions did not extend far last year, yet as I met with some interesting plants, the present brief sketch might be not altogether without interest.

SUNNINGHILL, EGHAM, ETC.

In the beginning of July last I passed a few days at Egham Hill, Surrey, where, in company with Mr. Whale, the florist, of Egham, and a young friend, I made an excursion to Sunning hill Bog. On leaving the Ascot Station, which is situated on the bog, we turned to the right, where, amidst elegant plumes of *Eriophorum angustifolium* and clusters of our three common Heaths, we soon found the exquisite little pink bells and round leaves of *Anagallis tenella,* with abundance of *Drosera rotundifolia* and *longifolia.* Here and there were the solitary flowers of *Cnicus pratensis,* and more frequently the brilliant orange spikes of *Narthecium ossifragum,* while further on we were well pleased to find the scented flowers of *Habenaria bifolia* in pretty tolerable abundance. In a rill which appeared to be strongly impregnated with iron, we found plenty of *Veronica scutellata* and of *Hypericum Elodes,* the more special objects of our excursions, together with *Potamogeton natans,* etc.

After crossing the bog we walked by the side of the railway, and found an elegant specimen of *Corydalis claviculata. Genista anglica, Senecio sylvaticus,* and a few *Junci* (*J. squarrosus, acutiflorus,* and *glaucus*) completed our day's collection.

In another excursion (to the meads near Egham) we found at the edge of a large pond plenty of *Utricularia vulgaris, Hydrocharis Morsus-ranæ, Sagittaria sagittifolia,* etc.,—the pond itself being covered with white and yellow Water-lilies, and fringed with Sedges, Rushes, etc., the handsome flowers of *Butomus umbellatus* being conspicuous among them. In hedges near we gathered *Rhamnus catharticus* and *Hypericum hirsutum,* and Mr. Whale assured me that *Lathyrus Nissolia* and *Papaver dubium* are found in the neighbourhood.

On the 28th of July I went to Dartford, and walked thence, by the old Roman road, to Greenhithe. In the course of this walk I gathered *Senecio viscosus, Onopordum Acanthium, Potentilla argentea,* near Dartford; and nearer to Greenhithe, *Papaver somniferum, hybridum, Argemone,* and *Rhœas,* growing close together in a corner of a field; *Anagallis cærulea, Geranium columbinum, Nepeta Cataria, Poa rigida,* etc.; and close by the entrance of a wood, *Astragalus Glycyphyllos* and *Listera Nidus-avis.*

On the following day I took train to Cuxton Station, and thence walked across, by Bush, to Cobham Park, hoping to find *Salvia pratensis* and *Althæa hirsuta,* but was quite unable to meet with either. I gathered however *Orchis pyramidalis, Adonis autumnalis, Linaria Elatine* and *minor, Dianthus Armeria,* etc.; and on a subsequent visit to Cobham, though equally unsuccessful with respect to *Salvia* and *Althæa,* I found *Lithosper-*

mum arvense, Polygonum Fagopyrum, Galeopsis Ladanum, and *Papaver hybridum.*

SOUTHEND, ETC.

Towards the end of August I went for a week or two to Southend, whose botanical attractions are far greater than I had expected.

On the sandy beach to the east of the town, I found abundance of *Salsola Kali, Eryngium maritimum, Arenaria peploides, Glaucium luteum,* etc. etc., as well as of several *Atriplices* and *Chenopodia;* while the ditches a little removed from the beach abounded in *Ulva* and *Enteromorpha,* and were fringed with *Statice Limonium, Atriplex portulacoides, Artemisia maritima, Bupleurum tenuissimum, Scirpus maritimus,* etc.

In one of the ditches also I found a fine specimen of *Triglochin palustre,* and, nearer the town, the banks of a large muddy ditch were covered with *Aster Tripolium,* most of whose flowers however wanted the florets of the ray. The marshes themselves yielded *Dianthus Armeria, Silaus pratensis, Trifolium fragiferum,* etc. etc.; and both the marshes and the grass between them and the beach were covered with tufts of *Juncus maritimus.* It was in these tufts that I had the pleasure of finding, on the last morning of my stay, several very elegant specimens of *Neottia spiralis.*

On the bushy cliffs west of the town, I found *Lathyrus Nissolia* and *Lathyrus Aphaca, Lactuca,* abundance of *Fœniculum vulgare,* and, best of all, of *Linum angustifolium.*

In the parish of Southchurch, not far from Southend, I found *Veronica Buxbaumii* growing so abundantly that I wondered how any doubt could be entertained of its being a native. I also met with *Trifolium fragiferum* in a hedge near Southchurch.

CLIFTON.

In concluding my summer rambles by a visit, at the end of October, to Clifton, I found some plants of *Chlora perfoliata* on the Somersetshire side of the Avon, on the muddy shores of which I noticed *Salicornia herbacea* and *Apium graveolens.*

On St. Vincent's Rocks I found *Veronica spicata, Geranium sanguineum* (off flower), and plants of *Grammitis Ceterach,* which, with *Asplenium Trichomanes* and *Ruta-muraria,* abounds on walls in the neighbourhood. *A. Adiantum-nigrum,* though found, is much less abundant.

On the Ivy, both on the cliffs and walls, I had the great pleasure of finding *Orobanche Hederæ,* etc.

M. H. Wilkin.

Hampstead, London.

GEOLOGICAL RELATIONS OF PLANTS.

An Attempt to Classify the Flowering Plants and Ferns of Britain according to their Geognostic Relations. By J. G. Baker.

I. *Fundamental Generalities.*

1. In regulating the distribution of species and modifying specific types, the subjacent geological formations, principally by reason of their mechanical properties, exercise an influence which, taken as a whole, is secondary only to that of climate, which it modifies and by which it is modified perpetually.

2. With reference to the facility with which they yield to disintegration, and to their hygroscopicity and porosity, strata are essentially separable into two principal classes—*dysgeogenous* and *eugeogenous.*

3. *Dysgeogenous* formations are those which are disintegrated with difficulty, and yield only a feeble detritus. On a grand scale they absorb moisture readily, and furnish stations characterized by their comparative dryness. Rocks of this class mostly contain a large proportion of carbonate of lime in their composition.

4. *Eugeogenous* formations are those which abrade easily and furnish an abundant superficial detritus, which may be either of a sandy or a clayey nature. They are comparatively impermeable and consequently hygroscopic upon a grand scale, furnishing damper stations than the rocks of the opposite category, especially when the detritus is clayey.

5. Every species possesses essentially its characteristic special range of lithological adaptability, in the same way that each possesses its characteristic special range of climatic adaptability. Under equal climatic conditions some species are restricted to more or less distinctly marked dysgeogenous situations, and others to more or less distinctly marked eugeogenous situations; but a greater number can adapt themselves more or less decidedly to stations of either class.

6. In proportion as we advance from an austral to a boreal, and from a continental to an insular climate, the proportion in number which the *restricted* (*i.e.* dysgeogenous and eugeogenous) bear to the ubiquitous species lessens, principally through reason of many of the eugeogenous species being able, under more humid conditions of climate, to adapt themselves also to dysgeogenous situations.

II. *The field of study lithologically viewed.*

For phytostatic purposes the field of study may be conveniently considered as subdivided into six lithological zones, viz.:—

1. *Psammo-eugeogenous;* including the endogenous and metamorphic rocks of the Scotch Highlands, and sedimentary strata that surround them.

2. *Mixed;* including the Silurian, Devonian, and accompanying strata of the southern part of Scotland and of Wales, and the west of England.

3. *Primary dysgeogenous;* including the carboniferous formations of the Penine chain and Permian limestones, enclosing the coal-pits of Durham and West Yorkshire.

4. *Eugeogenous;* including the new red sandstone strata of the centre of England.

5. *Secondary dysgeogenous;* including the liassic, oolitic, wealden, and cretaceous strata of the south-eastern half of England.

6. *Subeugeogenous;* including the fen-country and London and Hampshire tertiary basins.

These are occasionally interrupted by intervals of less typical or exceptional nature.

III. *Summary of Species.*

	Class.	No. of Species.	Percentage.
A.	Dysgeogenous	92	7 +
AB.	Subdysgeogenous	75	6 −
B.	Ubiquitous	699	53 +
CB.	Subeugeogenous	89	7 −
C 1.	Eugeogenous austral	65	5 −
C 2.	Eugeogenous boreal	79	6 +
D.	Maritime	90	7 −
E.	Hibernian or Sarnian	37	3 −
F.	Local or dubious	89	7 −
		1315	

FOREST HILL PLANTS.

List of Plants found on Forest Hill, 1830 *and* 1831.

The lapse of a quarter of a century has so completely changed the character of this once rural spot (known to Ray, Hudson, and others as the Oak of Honour Woods), that J. F. Y. has thought a list of the plants—many of them indeed common enough—which have been noticed there by him at the above date may not be altogether without interest.

Acer campestre.
Æthusa Cynapium.
Agrimonia Eupatoria.
Agrostis Spica-venti.
Alisma Plantago.
Alopecurus pratensis.
Alopecurus geniculatus.
Arenaria serpyllifolia.
Arundo Calamagrostis.
Bunium flexuosum.
Calluna vulgaris.
Campanula rotundifolia.
Circæa lutetiana.
Conium maculatum.
Convolvulus arvensis.
Cynosurus cristatus.
Conopodium flexuosum.
Daucus Carota.
Erica cinerea.
Erica vulgaris.
Epilobium hirsutum.
Epilobium montanum.
Epilobium villosum.
Festuca pratensis.
Fragaria sterilis.
Fragaria vesca.
Galium Mollugo.
Helosciadium nodiflorum.
Heracleum Sphondylium.
Holcus lanatus.
Juncus articulatus.
Juncus bufonius.
Juncus effusus.
Juncus squarrosus.
Linum usitatissimum.
Lychnis Flos-cuculi.
Lycopus europæus.
Lythrum Salicaria.
Lysimachia nemorum.
Lysimachia Nummularia.
Melica uniflora.
Milium effusum.
Œnanthe Phellandrium.
Parietaria officinalis.
Poa aquatica.
Poa distans.
Petroselinum segetum.
Phellandrium aquaticum.
Potentilla anserina.
Potentilla reptans.
Primula veris.
Prunella vulgaris.
Pyrus torminalis.
Ranunculus Flammula.
Ranunculus repens.
Ranunculus sceleratus.
Reseda lutea.
Reseda Luteola.
Sanicula europæa.
Sambucus nigra.
Silaus pratensis.
Sium nodiflorum.
Spergula nodosa.
Stellaria media.
Torilis Anthriscus.
Veronica officinalis.
Veronica Beccabunga.
Viola canina.
Achillea Millefolium.
Achillea Ptarmica.
Anthemis nobilis.
Antirrhinum majus.
Artemisia vulgaris.
Betonica officinalis.
Bryonia dioica.
Carex cæspitosa.
Carex riparia.
Chrysanth. Leucanthemum.
Cnicus acaulis.
Digitalis purpurea.
Ervum tetraspermum.
Euphorbia exigua.
Geranium dissectum.
Geranium molle.
Gnaphalium uliginosum.
Hypericum Androsæmum.
Hypericum hirsutum.
Hypericum pulchrum.
Hypericum quadrangulum.
Lathyrus pratensis.
Lathyrus sylvestris.
Lotus corniculatus.
Lotus major.
Malva sylvestris.
Matricaria Chamomilla.
Medicago lupulina.
Melampyrum pratense.
Mentha sylvestris.
Orobus tuberosus.
Orobus tuberosus, var.
Orchis maculata.
Polygala vulgaris.
Sagittaria sagittifolia.
Senecio Jacobæa.
Sisymbrium Nasturtium.

Sisymbrium terrestre.
Sonchus arvensis.
Sparganium ramosum.
Stachys sylvatica.
Stachys Betonica.
Tamus communis.
Teucrium Scorodonia.
Trifolium repens.
Typha angustifolia.
Vicia Cracca.
Vicia sativa.
Vicia sepium.

RARE OR SCARCE MOSSES.

A few Notes on some New or Rare British Mosses.

By W. Mitten, A.L.S.

I beg to offer to the consideration of bryologists the following few notes, in the hope that, in some small way, they may tend to the advancement of the study of these beautiful plants, and add to the detection of new, or identification of overlooked, species.

Hypnum hians, Hedwig, Sp. Musc. t. 70. f. 11, 12, 13, 14.—A very common Moss about Hurstpierpoint, and probably elsewhere; rare in fruit, which is produced in winter. This species grows generally amongst grass, and is very luxuriant on retentive clayey soils.

It is not a little curious that this fine Moss has never yet been enumerated in any European Flora, but has been supposed to be an American species; it exists probably throughout the continent of Europe. Specimens are in my herbarium from different localities; and very good ones, with perfect fruit, were inserted as *H. prælongum* in Spruce's beautiful 'Musci Pyrenaici.'

Hypnum hians differs from *H. Swartzii* in its wide, cordate, shining leaves, which are not at all acuminate, and not much altered in drying; it is not to be compared with *H. prælongum,* which is *H. Stokesii* of 'Bryologia Europæa,' and without doubt of Turner as well; for in this the cauline leaves are always much acuminate, and the whole appearance of the leaf is different.

Hypnum campestre, Bruch, Bryologia Europæa, Brachythecium, t. xi.—Common in Sussex, in pastures, and, with the preceding, luxuriating in clayey poor lands; fruit not very abundant; produced in winter.

The great similarity of this species to some states of *H. rutabulum* must account for its having been so long overlooked; it may however be always known by its leaves being much narrower, and the seta smooth or nearly so.

Mnium orthorynchum, Brid., Bryol. Europ. Mnium, t. 5.—

The discovery of this pretty species is Mr. Nowell's. Having myself observed the male plants stuck down on the same sheet with British specimens of *M. serratum* in the herbarium of Sir W. Hooker, but unfortunately without a locality, I had urged Mr. Nowell to search for it, and in a very short time he was so successful as to find it on shady limestone rocks, Arncliffe, Craven, with perfect fruit. I suppose it to affect montane and subalpine situations.

M. orthorynchum is distinguished from *M. serratum* by its dioicous inflorescence and much firmer cell-structure; it is therefore a more rigid Moss.

The present is perfectly distinct from the *M. orthorynchum* of Wilson, Bryol. Brit., excepting so far that the foreign fertile plant therein delineated may belong to it.

Mnium riparium, Mitten.—*M. orthorynchum,* Wilson, Bryol. Brit., so far as concerns the British specimens, also formerly distributed by me as *M. heterophyllum,* Hook.

Besides the localities already indicated I have no others to offer, excepting that some probably Irish specimens exist amongst the residue of Drummond's Mosses, without locality.

That this moss was distinct from *M. orthorynchum* I have always maintained; for a comparison of the leaves shows the cells to be about three times larger than in that species; in this particular it resembles *M. serratum,* but in that the inflorescence is synoicous, whilst male plants only of *M. riparium* are known to grow in Britain. The characters therefore to be ascribed to *M. riparium* are,—habit and size that of *M. serratum,* inflorescence dioicous, cells thrice as large as those of *M. orthorynchum.*

About two years ago I sent this Moss to M. Schimper, with the present name, *M. riparium,* Mitten, MSS., and he stated in reply, that he had received the same species, in fruit, from Mr. Sullivant, United States, and proposed to name it *M. Sullivantii.* Nothing however has since transpired respecting this; it is not noticed in the Corollarium, 'Bryologia Europæa,' nor is there any notice of such a species in Sullivant's beautiful 'Musci and Hepaticæ of the United States,' recently published. I have however examined several specimens of *M. serratum,* sent by Mr. Sullivant, which have a very great external resemblance to *M. riparium,* which nevertheless disappears when the plants have been carefully examined. This Moss is to be sought by the sides of rivulets, on roots, stumps, and on the earth itself where occasional floods bring down and deposit upon them a fine mud; it appears to shun the light.

Dicranum longifolium, Maiden Bower Crag, Dumfries (Mr. Wilson), intermixed with *Grimmia patens*, out of which I have picked a few stems, without any doubt belonging to this long doubtful British species.

Dicranum (*Thysanomitrium*) *uncinatum*, Harvey. *D. circinatum*, Wils. Bryol. Brit. p. 76.—This species will probably be found to be much less rare than supposed; it has been gathered, intermixed with *Jungermannia Doniana* in Clova, by Dr. J. D. Hooker; it was also gathered in Switzerland by Sir W. Hooker; and I have seen it intermixed with a specimen of *Jungermannia Doniana* sent by Mr. Croall to Mr. A. O. Black.

The fructification, not yet observed in Europe, is that of a *Campylopus*, and might be readily passed over except by an experienced eye.

Hypnum Berthelotianum, Mont. Hist. d. Isles Canaries, t. i. f. 2. *Leucodon Lagurus*, Bryol. Brit.—I have but little doubt of the above being the name this pretty Moss should bear: exactly similar specimens were collected in the Azores and kindly given to me by Mr. H. C. Watson. They were accompanied by some stems with more serrated leaves, corresponding with an authentic specimen from Dr. Montagne himself. I do not think it very like *Leucodon Lagurus*. The occurrence of this Azoric species so far north prompts the query, Why should we not find some other species which are at least as likely to be found here as *H. Berthelotianum?* Of these one is *Hypnum spinosum*, Mitten, MSS., a Moss so very closely resembling *H. hispidum*, Hook. fil. et Wils. Crypt. Antarct. t. 61. f. 2, that for some time I thought them identical. It has stems three or four inches high, dark or obscure, yellowish-green, simple or pinnately branched, its erecto-patent leaves very rigid, gradually attenuated from an ovate base, the nerve percurrent, scarcely altered in drying, giving the plants a peculiar rigid spinous appearance; it would probably occur on stones or on roots by the sides, or in, rivulets. I hope shortly to be in a position to give a full description of this Moss, having as yet seen only the base of a seta on specimens found in Madeira by Mr. Johnson.

Trichostomum flavo-virens, Bruch, Bryol. Europ. Trichostomum, t. 3.—A common Moss, on the sea-shore near Brighton, and probably elsewhere. I have specimens I suppose to have been collected near Dublin by Drummond.

This is distinguished from *T. mutabile* by its more flaccid greener leaves, composed of longer cells, the lower ones pale and pellucid.

Ephemerum tenerum, Hampe, Bryol. Europ. Phascum, t. 1. Haward's Heath and Pond-leigh, near Hurstpierpoint, Sussex.—Distinguished from *E. serratum* and *E. cohærens* by its entire leaves, which spread out from the fruit in a patulous manner. No locality has until now been given for this species but the one where it was originally discovered, "prope Neisky Lausatiæ," by Breutel.

Hurstpierpoint, June 1857.

FAVERSHAM PLANTS.

Plantæ rariores Favershamienses; communicated by the Rev. H. A. Stowell.

(*Continued from page* 156.)

Triglochin maritimum, frequent, and *T. palustre* more sparingly, in Ham marshes.

Potamogeton densus and *crispus*. In marsh dykes; the former the more general.

Potamogeton natans. In dykes, Graveney marshes.

Zannichellia palustris. In the brook near Stone Bridge. Ham marshes.

Zostera marina. Margin of the Swale at Harty Ferry.

Lemna trisulca. Dykes in Ham and Graveney marshes.

Sparganium simplex. Ham marshes; but sparingly.

Typha latifolia and *T. angustifolia*. Ham and Graveney marshes.

Juncus glaucus. In the marshes; plentiful.

Juncus maritimus. Margins of the creeks.

Juncus lamprocarpus. About Oare Bridge. Between Graveney and Seasalter.

Juncus obtusiflorus. Davington Osiers.

Juncus cœnosus. On and about the sea-walls of the creeks.

Juncus bufonius. Path-sides in Bysing and Hemhill woods.

Luzula sylvatica. Perry Wood.

Luzula pilosa and *Forsteri.* Bysing, Syndale, and Cockset woods.

Blysmus compressus. Brent's marshes. Behind Seasalter Coastguard Station.

Scirpus lacustris and *glaucus.* Ham and Graveney marshes; the latter rarely.

Scirpus palustris and *multicaulis.* Ham marshes; the latter less frequent.

Scirpus cæspitosus. Swampy ground in Hemhill Wood.

Eriophorum angustifolium. Davington Osiers.

Carex stellulata. Swampy ground below Perry Wood. Border of the wood near Dully Wood.

Carex ovalis. Swampy ground at Waterham, and in Hemhill Wood.

Carex intermedia. Davington Osiers.

Carex arenaria. About the sea-walls by the creeks, and in Clapgate marshes.

Carex muricata. In the marsh dykes; plentiful.

Carex curta. Borders of Bysing and Dully woods. On Beacon Hill.

Carex divulsa. Borders of Bysing Wood. Roadside near Scurtington Farm.

Carex vulpina. Ditch near the old Parish Poor-house, Luddenham.

Carex teretiuscula. Dykes near the sea-wall, Ham marshes.

Carex paniculata. Davington Osiers. Ham and Graveney marshes.

Carex vulgaris. Davington Osiers. By a stream in Hemhill Wood.

Carex acuta. Davington Osiers.

Carex distans. Below the sea-wall near Hollyshore, Ham marshes.

Carex binervis. Perry Wood.

Carex panicea. Swampy ground in Hemhill Wood and below Perry Wood.

Carex sylvatica. In all our woods; plentiful.

Carex pendula. In a ditch near the road at Waterham; rarely.

Carex glauca. On chalky banks. Edge of Dully and Badging woods. Lees Court Park. In the gravel-pit, Cockset Wood. Woods about Belmont.

Carex paludosa. Davington Osiers.

Carex riparia. In the marsh dykes; plentiful.

Spartina stricta. Near Oare Bridge, and at Harty Ferry; but rare.

Phalaris arundinacea. By the stream in Hemhill Wood.

Phalaris canariensis. Borders of fields near Sheldwick and Throwley; sparingly.

Alopecurus geniculatus and *fulvus.* In Ham marshes; the latter rarely near Hollyshore.

Alopecurus agrestis. Cornfields about Davington and Luddenham.

Milium effusum. Bysing, Syndale, Cockset, and Sandbanks woods.

Aira caryophyllea. Syndale Wood. Woods about Belmont.

Aira flexuosa and *cæspitosa.* Bysing, Syndale, Cockset, Sandbanks, and Perry woods.

Aira præcox. Perry Wood. Lees Court Park.

Avena fatua. Between Porter's Lane and Badging Wood.

Avena pubescens. Syndale Park. Porter's Lane. Whitehill. About Selling.

Avena flavescens. Frequent in dry pastures and woods, especially about Badging and Belmont.

Melica uniflora. In almost all our woods.

Catabrosa aquatica. Ditches about the rope-walk.

Glyceria aquatica. In the Abbey marshes, and at Graveney; but sparingly.

Glyceria fluitans. In the Abbey marshes. Swampy ground about Bysing and Hemhill woods.

Glyceria maritima. Beside the creeks.

Glyceria distans. Margin of Faversham Creek.

Glyceria Borreri. Margin of Faversham Creek; but very sparingly.

Glyceria procumbens. On the sea-wall near Oare Bridge.

Glyceria rigida. On old walls at Faversham and Rodmersham churchyards, and about Davington.

Poa nemoralis. Bysing and Sandbanks woods.

Festuca Pseudo-Myurus. On Faversham churchyard-wall.

Festuca duriuscula. On the sea-walls and in old chalk-pits.

Festuca elatior. Badging Wood. Woods about Belmont.

Festuca pratensis. Fields between Ospringe church and Whitehill.

Bromus asper. In almost all our woods.

Bromus sterilis. Roadsides about the town; plentiful.

Bromus erectus. Syndale, Cockset, and Badging woods. Woods about Belmont.

Brachypodium sylvaticum. In almost every wood about.

Brachypodium pinnatum. Whitehill. Badging Wood. Woods about Belmont. Lees Court Park.

Hordeum pratense. In the marshes; plentiful.

Hordeum murinum. Roadsides about the town.

Hordeum maritimum. On the sea-walls.

Lepturus filiformis. Upon and below the sea-walls on both sides of Faversham creek.

Aspidium aculeatum. Hedge-banks, and borders of woods; frequent.

Asplenium Adiantum-nigrum. Bank below Ospringe church, on the road to the Oaks. Oare and Rodmersham churches.

Asplenium Ruta-muraria. Wall behind Preston Street. Graveney churchyard wall.

Scolopendrium vulgare. Roadside near Lord's, and at Hemhill.

Blechnum boreale. In Perry Wood.

Equisetum sylvaticum. Mr. Giraud's Wood at Cades.

Any additions which I may be able to make to our Flora next year shall be duly reported, with the Editor's kind permission, in the 'Phytologist.'

Reviews.

The Natural History Review: a Quarterly Journal of Zoology, Botany, Geology, and Paleontology. April. Dublin: Hodges, Smith, and Co. London: Williams and Norgate.

The first article in this number is a review of 'Géographie Botanique' (Geography of Plants or Geographical Botany), by M. Alphonse De Candolle (we usually find the author's name written thus, Decandolle). De Candolle, the illustrious father of an equally illustrious son, wrote (or caused to be printed) his name as above: the present author adopts a somewhat different mode.

The false views popularly entertained in reference to the restriction of plants to certain zones or climates, an erroneous view by no means general among people of any considerable botanical knowledge, or observation and reflection, is well met by the author. Another view, still more extensively spread, is that organic remains of certain plants are a positive indication of the changes which climate has undergone in the lapse of ages. For example: because some tropical or extratropical forms of vegetation have been discovered in England, therefore England must, at some time or other, have had a tropical or extratropical climate. We have met with many who maintained this latter view, but few who maintain the restriction of living forms of plants in general to limited areas. The facts that are constantly appearing of the progressive spreading of species in certain places and the disappearance of other forms in the same and similar places, are evidence that the views above noticed need no very elaborate refutation. This great work, on the distribution of plants (which is not before us, only a review of it, which it would be uncourteous to review), is divided into two parts or sections, which the author distinguishes by the names of Geographic Botany and Botanical Geography. Very like "a distinction without a difference." It is very possible, however, that distinctions may exist where there are no differences; and therefore the learned author no doubt properly distinguishes Geographic Botany and Botanical Geography, although they may appear to some like "six of the one and half-a-dozen of the other." "By the first of these expressions *he* understands the consideration of species, genera, and families of plants in a geographic point of view; and by the latter the consideration of different regions of the earth with respect to the vegetation which clothes them." We wish rather than expect that this will throw any considerable amount of light on the subject. It is however to be borne in mind that we are only giving these statements at second-hand; we have *only* a review of the work before us. We give the following statement of facts *in extenso*, N. H. R., p. 48 (1857).

"The next chapter discusses what the author calls the *form* of the habitat of species, namely the differences in the diameters of the area occupied by different species when the line is drawn east and west, or north and south, or in some intermediate directions. Some curious facts are noted on this subject, and obviously this chapter deserves to be more extensively worked out. The author has limited his observations to the species contained in the eighth, ninth, and tenth volumes of the 'Prodromus,' as offering sufficient illustration of his subject, and finds that, of the 8495 species contained in these three volumes, there are only 116 which present any very marked differences (four times at least) between the lengths of the opposite diameters of their areas. The remaining 8372 species appear to occupy more or less circular areas,—a remarkable fact. It must be observed however that this examination refers exclusively to certain orders of the *Corolliflorœ,* whose distribution can hardly be taken as fairly representative of that of phanerogamous plants in general. Of the 116 species selected by M. de Candolle (*sic*) 68 extend east and west, and 48 in a narrow line north and south. One should hardly have *à priori* anticipated so nearly equal a division of the number; it seems so much more natural that a species should extend along the parallels of latitude, or at least in the isothermal lines, than along those of longitude. We are thus taught that other causes than those of annual temperature powerfully influence the natural dispersion of plants. The most potent, probably, are moisture and exposure to certain winds. Of the 48 species enumerated as having a north and south distribution, only two are natives of Britain, viz. *Pinguicula lusitanica,* which extends along the Atlantic shores from Portugal to the north of Scotland, but which is not found anywhere far from a western coast, and *Erythrœa latifolia,* likewise a coast species, found from Norway to Portugal.

The distribution of individuals in the areas occupied by the species is next discussed with considerable detail, showing how local causes modify the frequency or non-frequency or the luxuriant development of each species. The nature of the soil, exposure, supply of moisture, and other obvious modifying causes are indicated, and a list is given, after Mohl, of species which are characteristic of primitive rocks, and of those which only occur in calcareous soil. M. De Candolle seems to think also that something like a "rotation of crops" exists naturally among wild plants, and that a species shifts its soil (especially an annual one) from year to year, from causes similar to those that force the farmer to vary his crops when cultivating the same soil. "One cannot doubt," he says, "that the existence of a species, and especially its prolonged existence, becomes a cause unfavourable to the life of that same species, or of analogous species, in the same soil. The well-known fact that when a natural forest is cut down, trees of different species commonly spring up in the room of those destroyed, is adduced in proof of the necessity of rotation; and the hypothesis of the elder De Candolle, that roots discharge excretory matter, so as to poison the soil for themselves, is dwelt upon as an established fact."

Some may be inclined to doubt the facts assumed, and to aver that they are *other* than *well-known* or *established*. But the following facts are indisputable, viz. that "in the hands of some writers who establish new species 'on every local race, if it differ by a hair's breadth from their "typical" form,' a chapter like the present (on the area or space on the surface of the globe over which a species extends) would only lead to confusion. Fortunately for science M. de Candolle is content to call '*Ranunculus aquatilis*' by its single name, and consequently finds it to extend over the northern hemisphere, from Lapland to Abyssinia, and from the 68th parallel of north latitude in America to California. Had he chosen the opposite course, he might easily have treated us to a crowd of 'representative species,' each peculiar to its own pond or ditch over the same extent of surface." On this passage and on *this fact* we leave our readers to make their own comments.

We have not room for the fifty regions of the earth, each one supposed to indicate a more or less marked flora. To this subject the attention of our readers will be called in subsequent articles on this interesting subject. The following facts are sufficiently remarkable to merit notice at this time and in this place. It is well known that only one plant in 800 is common to both Australia and Europe; it is not however so generally known that upwards of a sixth part of the plants of New Zealand are also European species. In Australia in 1814 the plants of New Holland were reckoned at 3700 flowering species, of which 45, just $\frac{1}{800}$ part, were also Europeans. In the smaller island of New Zealand the numbers in 1856 were 730; and 60, nearly one-twelfth, were also European plants.

The following facts are still more remarkable. Of the 113 Norfolk Island plants 61 are peculiar to that locality, or are found nowhere else. Tristan da Cunha contains 32 species of flowering plants, of which 26 are peculiar to that small isle.

Another series of facts illustrated by this indefatigable observer will upset another of our time-hallowed *fictions,* viz. that winged seeds are more *dispersable* or occupy larger tracts than seeds unprovided with these singular appendages. "Among the *Compositæ* the proportion is as 4·5 to 2·9 per cent. in favour of naked seeds (seeds without down or wings), and hence the Daisy is twice as diffusable as the *Dandelion* and the *Thistle.*" There are however other causes which contribute to the distribution of plants over and above the *media* by which they are conveyable from the places where they grow to remote localities. One of the most important of these is the mechanical condition of the soil as pulverized or not, and another is atmospheric; but there is not room to illustrate these causes here.

The rapid dissemination of American plants in Europe and even in England, and the spread of European and other plants in the agrarial and even pastoral districts of Britain, has often been noticed. At the same time but little or at most less attention has been paid to the transmission of our own familiar species to other lands. Our author informs us that the Great or Horse Daisy is common in America, and a more troublesome weed than it is here. The Thistles of Europe are so formidable in Australia that the legislature has been induced to impose penalties on their *non-extirpation* *Ulex europæus,* the common Whin, has emigrated to Van Diemen's Land and St. Helena, where it abundantly increases. We are indebted to America for one at least of our *Balsams, Impatiens fulva,* for *Erigeron canadensis, Anacharis Alsinastrum, Mimulus luteus, Œnothera biennis,* etc. etc., and we repay our obligations by the export of our Thistles and other agrarial plants.

We have not much confidence in the fact observed, it is said, by one of the moderns, that Wheat is derived from *Ægilops,* and that Rye and Oats are only different or accidental states of the same species. These facts, if facts they be, might easily be verified by thousands of moderns who are all, more or less, *cupidi rerum novarum,* "fond of novelty." The fact that the widely dispersed species may owe their extended range to their having an earlier date in creation is not so capable of proof.

The readers of the 'Phytologist,' such of them as have not seen the elaborate work in question, are indebted to the editors of the 'Natural History Review' for this extended notice, which is exclusively borrowed from their April number (1857). But as soon as we conveniently can, we pledge ourselves to give them an extended notice of this valuable work, not derived at second-hand, but drawn fresh from the fountain-head.

Index Filicum: a Synopsis, with Characters of the Genera, and an Enumeration of the Species of Ferns, with Synonyms, References, etc. By THOMAS MOORE, Author of the 'Handbook of British Ferns,' 'The Ferns of Great Britain and Ireland, Nature-printed,' etc. etc.

It will be seen from the above title, that this is not a mere catalogue of Ferns, though even this might be a very useful work, but a careful digest of almost all that is known about this beautiful and popular order of plants. The first part contains the author's classification, or the orders, tribes, and sections under which he arranges the extensive materials of his subject. He briefly defines the families and the subordinate groups of genera. The latter are somewhat elaborately described: the identification of the common genera, such as *Lomaria, Pteris,* and *Asplenium,* occupies from five to seven lines, containing from twelve to twenty synonyms, under which the genus, at some period or other of its history, was recognized and described. It is not the author's intention, as we learn from his title, to publish a *Species Filicum,* or, in plain English, to describe the species. But it may be presumed that this portion of the work will be as carefully prepared as those parts which treat of the orders and genera. Thus it may be regarded as a condensed view of all that is at present known about Ferns, and a complete index to all that has ever been written on the subject. Hence it will very materially abridge the labours of all future students of this interesting family.

But it will perhaps be more satisfactory to let the author explain his object and his plan in his own terms. "Free use has been made of the statements, critical or otherwise, of those botanists who have devoted attention to the subject, the whole being blended with such personal information as the author has been able to bring to bear on the subject. The work is consequently to be regarded mainly as a compilation. It has however been the endeavour both of the author and the publisher to render it, as such, not only useful and readily available, but as free from error as possible. To this end the greater number of the references given have (*has*) been actually examined; a few only of those made to less accessible works have been taken on trust."

"In the prefixed Synopsis of the Genera the author has sketched out what appears to him the most intelligible arrangement, as well as endeavoured to simplify the definitions of the generic groups. As regards the genera themselves, it has been an endeavour to hold a middle course between the excessive subdivision and the equally inconvenient non-division of the older genera."

From what we have seen of this work it may be inferred that the work will be faithfully completed, and that it will be creditable to both author and publisher.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Plants in Churchyards.

A remarkable custom prevailed in North Wales at the period of Mr. Evans's visit to that interesting land at the end of the last century, now sixty years ago, viz. of planting the graves of departed relatives and friends with evergreens and flowers. Box, thrift, and other plants fit for edging, are planted round in the shape of the grave for a border, so that the taste of the living may here be known by the manner of embellishing these mansions of the dead. The Snowdrop, Violet, and Primrose, harbingers of Spring, denote the infant dust, that lies below; the Rocket, Rose, and Woodbine show maturer years; while Tansy, Rue, and Starwort mark declining life. Shakespeare alludes to this custom in his 'Cymbeline':—

> "With fairest flowers, lass,
> I'll sweeten thy sad grave; thou shalt not lack
> The flower that's like thy face, pale primrose, nor
> The azure harebell, like thy veins. No, nor
> The leaf of eglantine, which, not to slander,
> Outsweetened not thy breath."

> "Still when the hours of solemn rites return
> The village train in sad procession mourn;
> Pluck every weed that might the spot disgrace,
> And plant the fairest field-flowers in their place.
> Around no noxious plant nor flow'ret grows,
> But the first daffodil and earliest rose,
> The snowdrop spreads its whitest blossom here,
> And golden cowslips grace the vernal year:
> Here the pale primrose takes a fairer hue,
> And every violet boasts a brighter blue."

Evans's 'North Wales,' p. 18, *note.*

PYRUS AUCUPARIA.

A drink called in Wales *diodgriafel* is made from the berries of the Mountain Ash (Roan-tree), abundant in most parts of Wales, by pouring water over them, and setting the infusion by to ferment. When kept for some time this is by no means an unpleasant liquor; but necessity sometimes obliges the children of penury to use it before the fermentative process has commenced. In Scotland a spirituous liquor is obtained by distillation; and Gmelin informs us the same use is made of them by the natives of Kamtschatka.

In Wales this tree is held in high veneration by the superstitious. A small part of it is carried about as a defence against enchantment. A branch of the *Roan* (Rowan) is considered infallible in protecting cattle from witchcraft.—*Evans's 'North Wales,'* 162.

SUPERSTITIOUS USES OF PLANTS.

(*Pyrus Aucuparia.*)

The Witches' Bane.—If a branch of *Pyrus Aucuparia* is kept in the house, brought in on Good Friday, no witch can do any mischief there; but it must be annually replaced by a fresh branch before the other is taken out. And if a branch is put into the churn and cheese-vat, it will surely keep the witch from her machinations against the butter and cheese. A branch of *Pyrus Aucuparia* in the bed during the night will keep the hag-riding elf away,—a troublesome bed-fellow. This hag-riding, which causes so much trouble to the superstitious, is nothing more than (incubus) nightmare.

TORMENTILLA REPTANS.—*Potentilla Tormentilla*, var. *reptans.*

A correspondent writes, in a letter to the Editor, "that there is an idea that *Tormentilla reptans* and *Potentilla reptans* are identical, and that some botanist of note identifies them." He further says that he is "continually reminded of this idea by the very great resemblance in the aspect and habit of the two plants, and especially in the similarity of their flowers, which obliges me always to count the petals, in order to know to which species a given plant should be referred."

Another correspondent sends us the following on the same plant. "The tetramerous condition of *Potentilla reptans* is by no means a constant character as far as I have seen. I remember some time ago gathering some specimens of what I took to be *Potentilla reptans;* but I was told by one more deeply versed in British botany than myself that the specimen in question was *Tormentilla reptans,* with 10 sepals and 5 petals. When I get the chance I will examine the plants more minutely. Is there any difference in the carpels of the two plants?"

RANUNCULUS BULBOSUS, OR R. HIRSUTUS.

A correspondent asks the following question:—Has *Ranunculus bulbosus* always the bulb? The marshes of Plumstead are full of a hairy Ranunculus, with reflexed sepals and fibrous roots, but without the tubercles on the carpels, always ascribed to *R. hirsutus.*

We shall be obliged to any correspondent for an answer to the above.

The question will probably be answered affirmatively. In *R. hirsutus* the tubercles may be always *ascribed*, but they *may not always* be there.

WISTARIA (OR GLYCINE) SINENSIS.

A magnificent specimen of this plant, 180 feet long, and covering about 1800 square feet of wall, has been for some time an object of great interest in the garden of the Horticultural Society, where hundreds of persons have visited it and admired its piles of lilac-coloured fragrant flowers. The following little calculation will serve to show how wonderful is the evidence afforded by this single specimen of the creative power of Nature.

The number of branches was about 9000, and of flowers 675,000. Each flower consisting of 5 petals, the number of those parts was 3,375,000. Each flower contained 10 stamens, or the whole mass of flowers 6,750,000. Each ovary contained about 7 ovules, so that preparation was made for the production of 4,050,000 seeds, for the purpose of fertilizing which the anthers, if perfect, would have contained about 27,000,000,000 pollen-grains. Had all the petals been placed end to end they would have extended to the distance of more than *thirty-four miles.*

MENYANTHES TRIFOLIATA (*English Buckbean*).

A correspondent asks why this beautiful plant is named *Buckbean.* Miller, he observes, tells us that it should be *Bogbean*, but he believes that Buck is correct. Can any of our readers say why it is so called?

OXFORD PLANTS.

The following has come to hand from the ingenious author of the paper on Oxford plants.—Since the paper was written I regret to have to add another to the list of defunct species in the case of *Lastrea Oreopteris*, which has recently been uprooted and the site of its growth ploughed up, and thus another of the Shotover rarieties has disappeared. Should the petition (now in course of signature in Oxford) against the disafforesting of Stow Wood not be successful, there is reason to fear that further additions, including *Turritis glabra* and others, will have to be made to the list of extinct species by the next census-taker.

DORKING PLANTS.

Have you determined the *Borkhausia?* or is it a *Crepis?* I observed the plant *Crepis taraxacifolia?* growing in profusion last week in the Dorking chalk-quarries. *Helleborus fœtidus,*—I found several fine plants in Sir Lucas Pepys' wood at Mickleham. In the same locality I observed *N. Nidus-avis* plentifully. In one locality I counted seven specimens within the circumference of a yard, rather an unusual number to be in such close proximity. J. D. SALMON.

[A fresh plant of the *Crepis* would oblige the Editor.]

ALISMA PLANTAGO AND MR. RUSKIN, THE CELEBRATED ART CRITIC.

In a review of the Royal Academy Exhibition for this year (1857) there is the following, which is extracted for the sake of directing such of our readers as are connoisseurs to a somewhat singular fact.

"With characteristic eccentricity he (Mr. Ruskin) chose out a work by another painter of the school (pre-Raphaelite) . . . for his special laudation, and praised it for the botanical truth with which his favourite plant, the *Alisma Plantago* or Great Water Plantain, was therein delineated, when, in fact, extraordinary as it may seem, there was not one leaf of that plant in the picture, though there was another water-flower which Mr. Ruskin seems to have mistaken for the Water Plantain. The picture to which we allude was that of a nun, in white garments, standing by a pool and contemplating a flower, by C. Collins." The reviewer adds: "We have never seen the picture since it was exhibited, and know not where it is now; but we are well assured that our assertion will be confirmed by any botanist who has the opportunity of inspecting it."

We wish some botanist may have an opportunity of inspecting the said picture; and further, that he or she will be so obliging as to tell us what the plant is which the eminent author above mentioned mistook for the Great Water Plantain.

VERONICA BECCABUNGA.

V. Beccabunga, a corruption of the German *Bachbohne* or *Bachbunge*, Waterbean.

Please what is the meaning of *synoicous*, 'Phytologist,' p. 142 (inflorescence synoicous)—*συν* and *οικος*?

What is the term *Brooklime* derived from? NON-ŒDIPUS.

We are obliged to a correspondent for examples of several states of *Centaurea nigra*. We beg further to state that it is examples of *C. Jacea* that we want. Diagnostics of the two reputed species *C. nigra* and *C. Jacea* would be also esteemed a favour.

NOTICES TO CORRESPONDENTS.

Our kind distant friend is thanked who sent us two numbers of the 'Wellington (New Zealand) Independent' newspaper.

Mr. John Lloyd has also our best thanks for several interesting and rare plants collected in Somersetshire.

Communications have been received from

J. G. Baker; J. S. Mill; Censor; A. I.; Isaac Carroll; A. M.; Rev. T. F. Ravenshaw; Miss Hutton; Rev. W. T. Bree; Wm. Borrer, F.R.S.; Rev. W. H. Lucas; Rev. R. H. Webb; C. Barter (Sierra Leone); Edward Edwards; S. B.; Wm. Sutherland; Henry Groves; R. Bentley, F.L.S.; David Moore, A.L.S.; W. P.; William Marshall; John Barton.

BOOKS RECEIVED FOR REVIEW.

Irvine's British Plants; Part the First.

De Candolle's Organography; translated by Kingdon, 2 vols., Second (reduced price) Edition.

GLADIOLUS COMMUNIS.

To the Editor of the 'Phytologist.'

Allesley Rectory, July 4, 1857.

Sir,—Allow me to ask whether botanists are aware that *Gladiolus communis* has any pretensions to be considered a native, or, to say the least, a naturalized species in Britain? I have lately been informed, on authority which I cannot doubt, that the Cornflag occurs plentifully in several spots in the New Forest, in the neighbourhood of Lyndhurst, and that it is apparently wild there,—I mean sufficiently remote from any dwelling to obviate the suspicion of its being a mere stray from the garden. I hope ere long to hear more on the subject. If the *Gladiolus* be really a native, or if it has for any length of time been naturalized in the above locality, it certainly is strange that so handsome and conspicuous a plant should not have attracted the notice of botanists before.

W. T. Bree.

To the Editor of the 'Phytologist.'

Henfield, July 9, 1857.

Sir,—I think you will like to make public the occurrence of a *Gladiolus* (*G. imbricatus*, Linn., I believe), as a British plant. It was observed last year in the New Forest, Hants, by the Rev. W. H. Lucas, under whose guidance I had the pleasure of seeing it in its native places in the middle of the last month, but about a week too early for the flowers. I will copy for you Mr. Lucas's account of the stations, and will only add that the plant has all the appearance of being truly wild, and that I expect it will be found in other parts of the Forest, if looked for among the Brakes, which overtop it when in flower.

Your obedient servant,
W. Borrer.

"The *Gladiolus* grows in considerable numbers on both sides of the road from Bolderwood to Lyndhurst, about a mile from the latter place; also along a green path extending south-east from the turnpike on the road from Lyndhurst to Christchurch (two miles from the former), towards a new enclosure near Rhine-field. Along this path it is met with at intervals of a quarter of a mile. It grows in dry situations among the Brakes.

"These two stations are upwards of two miles apart, and both of them are a mile from any house.

"W. H. LUCAS."

THE AMERICAN WATER-WEED.

Anacharis Alsinastrum.

To the Editor of the 'Phytologist.'

Sir,—In your last volume (i. N.S. p. 361) a correspondent throws some doubt on my suggestions as to the apprehended mischief to arise from this plant to navigation and drainage, and he says, "he cannot see how it can obstruct the drainage of the Fens, because it will not lie close enough together for even capillary attraction to act so as to keep as great a bulk of water as itself together." If your correspondent lived in a fen country, as I do, he would soon know how weeds may and do impede the *drainage* of rivers where, for many miles together, the fall is probably not more than *four* inches to a mile; and when the question is of *navigation* in such sluggish waters, he would soon see that the *Anacharis* would increase in them almost as rapidly as in a lake or pond.

When I wrote some account of the *Anacharis* in 1852,* it was then but newly introduced into the Isle of Ely, and the question then was, "How is it to be got rid of?" I ventured then to answer that question with an emphatic "not at all," and subsequent experience has fully confirmed that prediction. Doubtless it has gained a permanent footing with us, and can never be eradicated. Smothering our native water-plants, it takes exclusive possession of ditches and drains, filling them completely with a black-green mass, which gives quite a novel character to the ditches in the Fens. I moreover ventured at that time to say that all we could do would be to keep it down by raking it out upon the shore; and I warned commissioners of drainage against letting fresh water from the rivers into their districts, for if they did so, "the weed would inevitably enter with the water, and blockade the ditches" (p. 16). Well, just what I predicted has happened. The water has been let in, and the ditches are blockaded; the consequence is, that a considerable sum of money has now to be annually expended in clearing them.

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* 'The New Water-weed (*Anacharis Alsinastrum*); some account of it.' By William Marshall, Esq., of Ely, Cambridgeshire. London: William Pamplin, 45, Frith Street, Soho Square.

That it is a nuisance elsewhere than in the Fens is evident from a letter I received from a gentleman at Trentham, in Staffordshire, so lately as the 6th inst., asking my opinion of the best mode of getting rid of it in the lake there. He says:—"The American weed (*Anacharis Alsinastrum*) is causing a great amount of anxiety here on account of its amazing growth, and the tenacity with which it clings to those spots where it once takes possession. There is a beautiful sheet of water, of about eighty acres, through which the river Trent passed previous to the year 1853, when its channel was diverted, but there are still places where the connection is maintained, although but slightly so. About three years ago the *Anacharis* first made its appearance in the river, a short distance above the lake; it had previously taken possession of the Trent and Mersey Canal, with which there are means of communication, and a month afterwards it was visible in the lake. Both last year and the previous one it had increased so rapidly as to require removal by manual labour: *but the more it was disturbed the faster it grew.* This year it covers the entire surface, and *in so dense and wonderful a manner that no amount of labour seems capable of removing it, or even keeping it under. It actually grows faster than it can be cleared off,* the mode of which is, first by cutting, and then drawing it together by means of long rafts, collecting it on the shore, and either carting it away or placing it in heaps for decomposition. The Duke and Duchess of Sutherland are much concerned on the subject. I told Mr. Heming, the gardener here, that I would write to you, and I doubt not you will favour me with any information your greater experience suggests. Do you know whether the weed still causes the annoyance to traffic on the canals and places it did at the time you wrote, or whether there are any chances of its exhausting itself by natural means? If there was any probability of the latter being the case, the matter would become simply one of time; *if not, the expense of keeping so large a surface as the lake clear, even in an ordinary way, would be a serious consideration, because it would be an annual one.* If you know of any plan by which it might be subdued or eradicated in sheets of ornamental water, I shall be sincerely glad if you will favour me with the suggestion, or if you can refer me to any one likely to assist me I shall be equally thankful."

I see no symptoms in this part of the country of the *Anacharis* exhausting itself. Wherever there is water, there will it be. Cut it, and clear it out, and in a few weeks it will be seen dotting the bottom with new individuals, each separately rooted. Cold weather checks its growth, while hot encourages it to an extraordinary degree. Drought kills it immediately, and so I believe does frost, and these two facts suggest the laying dry the bottom of ornamental waters, either in summer or in the depth of winter, in order that drought and frost may act upon it. The drought however must be *complete,* otherwise vitality is retained in the little eyes or "gems" which nestle in the axils of some of the leaves, and these germinate like the axillary buds of some Lilies.

I may remark, now I am upon the subject, that it flowers in our still waters in the greatest profusion, covering the surface with its tiny blush-coloured flowers and silky threads, but I have never found any but *females.* From the peculiar character of the female flower (by which I mean the fact that although there are no *perfect* stamens present, yet *the filaments* are always there, wanting only anthers to surmount them to make the flowers perfectly hermaphrodite), I had expected ere this to hear of the plant having perfected seed, owing to some *few* of the myriad millions of flowers which have been developed by it in this country having become hermaphrodite by sporting; but, although I have carefully examined thousands of flowers in this locality, I have never yet found one of the filaments bearing an anther on its summit. The seed-vessel is there, and there are seeds lying within it; the botanist therefore need not be told how slight a further development of the female flower would render it a perfect one, and enable the now unhappy denizen to enjoy that connubial happiness which has been wanting to it ever since it made its first entrance into this unsocial region.

Cases are recorded of the female flowers of some diœcious plants (*e.g.* Hemp, Hops, etc.) producing perfect seeds in the absence of the male. Perhaps then, either by the mode already suggested, or independently of it, perfect seeds may occur, which, generating in this country, will at length give us both male and female plants; after which we shall be able to solve the problem whether, when its natural and normal state is thus restored, its present apparently abnormal vigour of increase may not abate, and we may not see it take its place among our uliginous aquatics, dividing with them the empire of the waters, instead of, as now, challenging and all but achieving the exclusive dominion. I would therefore suggest to my brother botanists throughout England to have an eye to the *Anacharis* during its period of flowering, in order to see whether a sport of the kind indicated may not be found in some of its very numerous habitats.

Yours obediently,
W. MARSHALL.

Ely, July 14, 1857.

HERTS FLORA.

Additions to the 'Additional Supplement to the Flora Hertfordiensis.' (*Vide* 'Phytologist,' N. S. vol. ii. p. 156, etc.) *By* EDWARD EDWARDS.

P. 8. *Helleborus viridis.* Dowdell's Wood, Ayott St. Peter.

p. 9. *Aquilegia vulgaris.* Ayott St. Lawrence.

p. 14. *Papaver Argemone* and *dubium.* Hill-end Farm, near No-man's Land, Sandridge.

p. 15. *Papaver somniferum.* About the environs of St. Alban's.

p. 16. *Corydalis lutea.* Old wall, Codicote.

p. 20. *Barbarea præcox.* Occasionally about Marford, Wheathamstead.

p. 22. *Cardamine sylvatica.* Under hedges by the field-path from Marford Bridge to Water-end Farm, plentiful. Berry green. Wheathamstead.

p. 27. *Erysimum cheiranthoides.* About the environs of St. Alban's.

p. 27. *Camelina sativa.* Borders of fields on Hill-end Farm, Sandridge, plentiful, 1856.

p. 29. *Lepidium campestre.* Sandridgebury Farm.

p. 36. *Parnassia palustris.* Marshy meadow near Marford Bridge, abundant, 1856.

p. 38. *Dianthus Armeria.* Among the Broom between Marford Bridge and Water-end Farm. North bank of the Lea, plentiful.

p. 40. *Silene inflata*, var. with stems and leaves very rough. Pasture outside the great entrance to Brockett Park. Footway to Lemsford Mills.

p. 43. *Spergula arvensis.* Cromer Hyde, near Brockett Park.

p. 47. *Cerastium aquaticum.* Near Marford Bridge.*

p. 50. *Hypericum calycinum.* Naturalized near the ruined villa, Marford Bridge.

p. 55. *Geranium columbinum.* Ayott St. Lawrence, frequent.

p. 67. *Trifolium medium.* Sandridge.

p. 71. *Ornithopus perpusillus.* No-man's Land.

p. 73. *Vicia angustifolia.* Sheep-pen Lane, Marford Bridge.

p. 74. *Ervum tetraspermum.* Ayott. Wheathamstead.

p. 76. *Orobus tuberosus.* Dowdell's Wood.

p. 86. *Fragaria elatior.* In several woods about the Ayotts.

p. 91. *Alchemilla vulgaris.* Frequent about Wheathamstead.

p. 96. *Epilobium angustifolium.* Dowdell's Wood, rare.

p. 110. *Ribes Grossularia.* Bridehall Farm, Sandridge.

p. 110. *Ribes rubrum.* In a dell-hole between Water-end Farm and Dowdell's Wood.

p. 110. *Ribes nigrum.* Banks of the Lea. Marford.

p. 112. *Saxifraga granulata.* Marford, plentiful.

p. 114. *Petroselinum sativum.* Gurstead Wood Common.

p. 117. *Ægopodium Podagraria.* A weed about Marford. Brockett Park.

p. 126. *Torilis nodosa.* Wheathamstead.

p. 130. *Adoxa Moschatellina.* Plentiful near the Flint Bridge, Brockett Park. Gray's Wood, near Marford.

p. 132. (Additional species.) *Lonicera perfoliatum.* Norfolk's Woods, near Ayott St. Lawrence, rare.

p. 133. *Sambucus Ebulus,* with pale fruit. Hedge near Sandridge.

p. 136. *Viscum album.* On Thorns, Lamer Park.

p. 138. *Galium cruciatum.* Between the rectory-gate, Ayott

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* I once found in Dowdell's Wood a very curious form of *Cerastium glomeratum.* Instead of the usual pair of opposite bracts at the base of the head of flowers, there was a whorl of six or eight bracts spreading round the heads of flowers, almost like an involucre, the flowers being apetalous and abortive, so that altogether it looked very unlike the customary plant.

St. Lawrence, and the lodge-gate of Lamer Park, and in one or two adjoining fields, plentiful.

p. 139. (Additional species.) *Galium anglicum.* Old wall of Brockett Park, above Lemsford Mills.

p. 139. *Galium tricorne.* Fields near Ayott St. Lawrence.

p. 142. *Dipsacus pilosus.* Footway behind the Flint Bridge, Brockett Park.

p. 146. *Centaurea* [*nigra?*], var. *radiata.* Hill-end Farm, Sandridge. Mackery-end Fields, Wheathamstead. Bride Hall, near Ayott.—My own idea of this is, that it is a *hybrid* between *C. scabiosa* and *C. nigra,* and I never saw it but in companionship with those species. Plants from the above three stations agree pretty well with specimens I possess, labelled "*Centaurea nigrescens,* Malvern, Mr. Roby" (*vide* 'Phytologist,' o.s., vol. ii. p. 924).

p. 149. *Cnicus acaulis.* Plentiful on No-man's Land, common.

p. 154. *Tragopogon porrifolius.* Hill-end, Sandridge, rare.

p. 160. *Hieracium sylvaticum,* with *H. boreale.* Dowdell's Wood.

p. 168. *Anthemis arvensis.* Hill-end Farm, Sandridge, plentiful, 1856.

p. 170. (Additional species.) *Achillea serrata.* A few plants of this about Ayott Green and neighbourhood, flowering freely, 1856.

p. 170. *Artemisia Absinthium.* Between Water-end and Brockett Park.

p. 176. *Campanula glomerata.* Abundant and very fine in the churchyard, Ayott St. Peter.

p. 185. *Vinca minor.* Wheathamstead Hill.

p. 186. *Menyanthes trifoliata.* Near Marford Bridge, flowering plentifully, 1857.

p. 187. *Gentiana* ——? The Messrs. Thrale, of No-man's Land, lately informed me that they found a Gentian with *very large blue* flowers growing on Bower Heath some years ago: could this have been *G. Pneumonanthe?* They did not preserve their specimens, nor have I yet been able to go in search of it.

p. 187. *Gentiana Amarella.* Chalk-pit between Abbot's Hay Farm and Codicote Bottom.

p. 187. *Gentiana campestris.* This flowered in the No-man's Land station in 1856.

p. 191. *Polemonium cæruleum.* Several plants in the lane from Water-end Farm to Ayott Green, 1856.

p. 193. *Cuscuta Trifolii.* Sandridgebury Farm, on Clover, in frightful profusion, 1856.

p. 197. *Pulmonaria officinalis.* Gurstead Wood Common, scarce.

p. 201. *Atropa Belladonna.* In the great Warren-dell, Bride Hall Farm, near Ayott, plentiful, 1857.

p. 203. *Verbascum Lychnitis.* About Marford, rare.

p. 205. *Orobanche major.* On Broom, between Marford and Water-end, both sides of the river, plentiful, 1856.

p. 206. *Orobanche minor.* Roadside, Brockett Park, near Cromer Hyde, scarce, 1856.

p. 206. *Digitalis purpurea,* var. *alba.* About Marford. Prior's Wood, Ayott.

p. 208. *Antirrhinum Orontium.* Hill-end, Sandridge.

p. 209. *Linaria Cymbalaria.* Wheathamstead.

p. 213. *Rhinanthus Crista-galli.* Pastures near Marford. Wheathamstead.

p. 217. *Veronica polita,* var. *grandiflora.* Fields on Sandridge Moat Farm, plentiful, 1857.

p. 219. *Mentha sylvestris.* Leasey Bridge, Wheathamstead.

p. 219. *Mentha rotundifolia.* Near the waste, Hatfield Woodside.

p. 223. *Calamintha Nepeta?* Fine and plentiful under the old walls of Brockett Park, between Lemsford Mills and Digswell Hill.

p. 224. (Additional species.) *Melissa officinalis.* Naturalized near Upper Beech Hyde Farm, Sandridge, 1856.

p. 234. *Primula vulgaris, β, caulescens* (Bab.). Dell near Water-end Farm (with *Ribes rubrum*). Sheep-pen Lane, Marford Bridge. Bride Hall fields, near Ayott.

p. 237. *Anagallis arvensis,* var. with flowers *green,* edged or tinged with *purple.* Upper Beech Hyde fields, Sandridge.

p. 246. *Polygonum dumetorum.* Ayott St. Peter.

p. 246. *Polygonum amphibium.* Marford Bridge.

p. 250. *Daphne Laureola.* Wheathamstead.

p. 253. *Euphorbia platyphylla.* Fields over which the footpath passes from the London road, Hatfield, towards Welham Green, plentiful, 1856. (Identical with the Offley-holes plant.)

p. 254. *Euphorbia Peplus.* Common about Wheathamstead.

p. 255. *Mercurialis perennis.* This plant is called "Adder's meat" by the Herts peasantry.

p. 260. *Salix Hoffmanniana.* Lea, between Marford and Brockett.

p. 270. *Juniperus communis.* Chalk-dell south of Lamer Park.

p. 280. *Sparganium simplex.* Ditches in the water-meadows near Marford Bridge.

p. 284. *Anacharis Alsinastrum.* In the Ver, behind the Abbey Church, St. Alban's, towards St. Michael's, flowering (female flowers only), 1855.

p. 285. *Orchis Morio.* Lamer Park, very fine, 1856. Pastures near the Lea, Water-end Farm, 1857, scarce. On the open waste near Oak Farm, south-east of Sandridge, plentiful, 1857.

p. 285. *Orchis* [*mascula*]. Some very large plants, with sepals and petals very acute, and the leaves unspotted, possibly the *O. speciosa* of Host. (*vide* Bab. Man. ed. 4. p. 316), occurred in the Moat or Slad near Upper Beech Hyde Farm, Sandridge, in 1856. *O. mascula* is by far the most common of the tribe in the Wheathamstead district.

p. 287. *Orchis latifolia* and *angustifolia.* Stanborough, 1856. Near Marford Bridge.

p. 287. *Gymnadenia conopsea.* Lamer Park, 1856. Marsh near Marford Bridge, 1855.

p. 290. *Habenaria chlorantha.* Great Warren Dell, near Norfolk's Woods, 1857.

p. 291. *Ophrys apifera.* Lamer Park (Mr. Dorrington).

p. 293. *Neottia Nidus-avis.* Lamer Park, 1856.

p. 294. *Epipactis latifolia.* Sandridgebury Wood. Mackeryend Wood. Near the western entrance to Dowdell's Wood.

p. 299. *Narcissus* [*Pseudo-Narcissus*]. The double-flowered variety occurs in profusion in some fields in Sandridge parish.

p. 300. *Narcissus biflorus.* Upper Beech Hyde.

p. 300. *Galanthus nivalis.* Single-flowered and wild, but not indigenous about Marford. North bank of the Lea, towards Water-end Farm.

p. 302. *Convallaria multiflora.* Naturalized about Marford.

p. 303. *Hyacinthus,* var. *alba.* Ayott Woods. Brockett Park.

p. 304. *Ornithogalum umbellatum.* Near Wheathamstead.

p. 304. (Additional species.) *Ornithogalum nutans.* Among the grass in Stagenhoe Park. St. Paul's, Walden, with *O. umbellatum* (Mr. M. Balls).

p. 305. *Allium vineale.* Hillcott's field, near Marford Bridge.

p. 312. *Scirpus lacustris.* Near Marford Bridge, and flowering in 1856.

p. 314. *Carex stellulata.* Stanborough marshes.

p. 327. *Agrostis Spica-venti.* Cornfield on Bride Hall Farm, sparingly, 1856.

p. 333. *Poa rigida.* Warren Dell, near Norfolk's Woods.

p. 334. *Catabrosa aquatica.* Marford and Water-end, very fine and abundant.

p. 335. *Cynosurus cristatus,* var. *vivipara.* This curious form occurred on No-man's Land, Wheathamstead, in the autumn of 1856. None of our handbooks that I have looked into notice such a variety. My plant closely resembles a specimen I have, found in Norfolk, date 1806, by the late Mr. Mosely, of Shrawley, Worcestershire.

p. 338. *Bromus commutatus.* Sandridge.

p. 340. *Lolium multiflorum.* Digswell. Ayott. Wheathamstead, etc.

p. 341. *Triticum repens,* glaucous var. In hedges near the Rectory, Ayott St. Lawrence.

p. 346. *Equisetum limosum.* Wheathamstead.

p. 347. *Ophioglossum vulgatum.* Pasture at Marford.

p. 348. *Asplenium Trichomanes.* On Wheathamstead church (Mrs. Snell). At the corner of the lane leading from Ayott St. Peter to Welwyn.

p. 349. *Asplenium Adiantum-nigrum.* Devil's-dyke, near Wheathamstead. Roadside at Stanborough.

p. 350. *Athyrium Filix-fœmina.* Dowdell's Wood.

p. 351. *Ceterach officinarum.* On the dilapidated garden-walls. St. Paul's, Waldenbury, abundant and *certainly* spontaneous.—*Scolopendrium* occurs with the *Ceterach,* but sparingly.

p. 353. *Aspidium Filix-mas,* var. *affinis* of Newman (British Ferns, ed. 3).—Plants approaching this occur in the lane between Ayott St. Peter and Water-end Farm.

p. 353. *Aspidium dilatatum.* On hassocks of *Carex paniculata.* Stanborough Marsh.

p. 354. *Aspidium spinulosum.* Dowdell's Wood.

BOTANICAL SKETCHES.

Mr. Editor,—I herewith send the first of a series of Botanical Sketches, which I will continue if they are liked by your readers. I am, etc.,—I. A.

YARMOUTH, ISLE OF WIGHT.

Yarmouth is situated on the eastern side of the Yar, and is built at the extremity of a narrow peninsula or tongue of land, which is bounded by the Solent on the north, the Yar on the west, and a small brook on the south. The formation of all the northern shore and side of the island from Yarmouth, easterly, is the tertiary. To the west of the Yar, about and beyond Sconce Point, towards the Needles, there is a repetition of the famous Undercliff, only in miniature. The sea soaks the foundation, and the shelving declivitous soil slides down, leaving the ground much broken. Terraces, though only of small dimensions, are formed through the subsidence of the bluish marl on which the upper stratum rests. At Sconce Point a fortress and barracks for the garrison are now erecting, and it is proposed to build another fort about a mile further west; these two batteries, with the opposite one of Hurst Castle, will completely protect the entrance to the Solent, which here is not above a mile or two in width.

The botany of Yarmouth and its neighbourhood is more than usually interesting. The following are a few vegetable rarities. *Spartina stricta* grows on both sides of the Yar, wherever there is mud; it is the only grass of that dismal swamp, and it grows luxuriantly, much larger than in North Kent. On the sandbank between the sea and the west side of the ferry, there grow *Eryngium maritimum* (Sea Holly), common Fennel (*Fœniculum officinale*), *Psamma arenaria* (Marram, or Sea Reed), a valuable grass for binding the sand, *Asparagus officinalis, Cakile maritima* (Sea Rocket), *Althæa officinalis* (Marsh Mallow), and *Convolvulus Soldanella* (Sea Bindweed); and on the Downs about Sconce Point, *Œnanthe Lachenalii, Hyoscyamus officinalis* (Henbane), *Erythræa pulchella,* and a pretty variety of *Gentiana Amarella,* with four segments to the calyx and four lobes to the corolla. The typical form, with five segments in the calyx and corolla, appears to be very rare, if not entirely absent, in this locality.

Dozens of specimens were examined, collected on all parts of the Downs between the beacon and the lighthouse, and from thence to Sconce Point, and all had these organs four-parted. *Spiranthes autumnalis* is very rare on the Downs, and is probably so because eaten by the sheep. *Tamarix gallica* grows by the mill not far from Yarmouth, but it has the appearance of having been planted there, or of having sprung from a cultivated plant. *Campanula glomerata* on the Downs is scarcely an inch high, and abounds. The vegetation of the Downs is dwarfish, exceedingly minute, but very nutritious, and the mutton of this part of the island is deservedly celebrated. This part of the island is exposed to every wind that blows, and even in summer the wind here is both brisk and keen; hence the plants are very much stunted in their growth. *Borago officinalis* is found by a roadside close to the town of Yarmouth, and *Iris fœtidissima* in lanes both on the west and east of the Yar. These two rare plants are characteristic of the botany of Yarmouth. The Madder (*Rubia peregrina*) abounds on the western side of the river Yar, and the Gladwin Iris on the eastern. The late Dr. Bromfield met with a few specimens of this Iris in which the flowers were of a uniform lemon-yellow colour, verging upon white in the segments of the perianth, without any purple colouring except a few faint veins of a somewhat deeper colour than the ground-colour. This variety was discovered in a wood near Yarmouth. The Madder (*Rubia peregrina*) is also a very scarce plant in the south-eastern counties of England. The Isle of Wight, Dr. Bromfield remarks, is its eastern limit; it is found in abundance nowhere in the south of England beyond this. It is plentiful in the west of England about Bristol; it grows most abundantly in woods and hedges on the west of the Yar, by the way from Yarmouth to Freshwater. *Chlora perfoliata* grows sparingly on the shelving steep bank which skirts Totland Bay, and *Crambe maritima* at its base. To a stout pedestrian the walk over the Downs from Freshwater Gate, by the beacon, onwards to the lighthouse at the extremity of the Needles, is peculiarly exhilarating and healthful.

The Downs are covered with the closest and shortest vegetation; being partly saline it is cropped to the very earth by the sheep which graze here. Excepting Furze, which grows on the inland side of the Downs, there is no species of plant that reaches an inch in height. The wild Carrot, which is a tall plant in most situations, flowers here close to the turf, and its little root is six times as long as its stem and umbel of flowers.

Also the walk along the cliffs from the Warren which occupies the declivities on one side of Alum Bay, to the town of Yarmouth, is very beautiful. The view embraces all the western half of the island, Portsdown Hill, Lymington, Christchurch, and all the New Forest: the spire of Salisbury is rarely seen. To view the rocks or cliffs a boat is necessary. Distant views only are obtainable from land, and the approach to the very edge of these cliffs, almost overhanging the surgy ocean, is perilous even to those who possess strong nerves, for the wind is almost always high, and the turf, though apparently firm, may have been undermined by the action of the weather on the gravelly chalk.

The sections of the variously-coloured sands of Alum Bay are very striking, and with a few adjuncts, such as a vessel or boat, which artists can introduce with effect, a view of the sands of Alum Bay from the Downs on which the lighthouse is built, would make a very beautiful picture. The various headlands along the cliff from Alum Bay to Yarmouth are furnished each with a flagstaff, and a cottage is always contiguous; these add much to the interest of the walk along the path, which is mostly on the outskirts of the Downs which bound all the western portion of this coast. From Yarmouth eastward, the coast is low and shelving, and possesses little to attract the tourist. The objects of interest and beauty are to be sought for on the south and west, and the tourist, especially if a good pedestrian, will not have to search for them in vain.

The botanizing on the eastern side of Yarmouth is not so interesting as that on the western or Sconce Point side, yet there are a few interesting plants between Yarmouth and New Town. The pastures (it was late in the season when I botanized there) afford *Spiranthes autumnalis*. There a curious fact was noticed in connection with this plant: on the cow-pastures it was found, not very abundant, it is true; on the sheep-pasture adjoining, and as likely to produce the plant, not a single plant was to be seen. Do the sheep of the Isle of Wight like this as a piquant relish to their food? On Riddle Downs, in Surrey, near Croydon, this plant is plentiful, and all these Downs are pastured with sheep. Do the Surrey sheep reject this plant, or is there abundance of herbage there which they like better? In the island the pastures are very bare, and perchance necessity compels the sheep to eat it there.

The botany of Yarmouth itself—that is, of the town and gardens therein—is more striking to one accustomed to the common aspect of vegetation in towns and villages in the interior. The Hydrangeas, the Fuchsias, the Geraniums, and several other plants which are difficult to keep during the winter in inland situations, are here seen in the utmost possible luxuriance and beauty, and preserved for years without any trouble whatever, except merely setting them in the ground in sheltered parts. The lemon-scented plant, *Aloysia citriodora,* especially attracted notice. *Coronilla varia, Linaria purpurea,* and several exotics, had established themselves as weeds in the rich, friable, light mould of the gardens of the townsfolk,—a proof of the mildness of the winters as well as of the moistness of the climate.

WEST HIGHLAND PLANTS.

A List of some Plants found in the West Highlands, chiefly in the vicinity of Loch Moidart, *Inverness-shire,* 1856. *By the* Rev. T. F. Ravenshaw, M.A.

? Thalictrum minus: Sminisary. *T. alpinum:* Roshven. *Trollius europæus:* Scuir Dghonaldgh. *Nymphæa alba:* Aharrichal; Killchoan. *Corydalis claviculata:* Sminisary. *Cochlearia officinalis:* Moidart; Canna; Eig. *C. anglica:* Arasaig. *Cakile maritima:* Eig. *Cardamine hirsuta:* Moidart. *Arabis hirsuta:* Killchoan. *Viola tricolor:* Corran Ferry; Moidart. *Drosera rotundifolia:* Moidart. *D. longifolia:* hills near Moidart. *Parnassia palustris:* Moidart. *Silene maritima:* Strontian; Eig; Canna. *S. acaulis:* Roshven. *S. inflata:* Borodale. *Spergula nodosa:* Sminisary. *Stellaria uliginosa:* Moidart. *Arenaria peploides:* Moidart. *Spergularia marina:* Moidart. *Hypericum Androsæmum, H. pulchrum, H. humifusum, H. perforatum:* Moidart. *H. quadrangulum:* Eig. *Geranium molle, G. columbinum, G. Robertianum:* Moidart. *G. dissectum:* Canna. *G. sylvaticum:* Salen. *G. sanguineum:* Borodale. *Erodium cicutarium:* Sminisary. *Anthyllis Vulneraria:* Canna; Ardnamurchan Point.

Vicia sylvatica: Borodale. *Orobus tuberosus:* Killchoan. *Prunus spinosa, Spiræa Ulmaria, S. salicifolia, Geum montanum, G. rivale:* Moidart. *Alchemilla vulgaris:* Ardnamurchan; Scuir Eig. *A. alpina:* Scuir Dghonaldgh. *Comarum palustre:* Morar; Eig. *Rubus Idæus:* Sminisary; Irin. *R. saxatilis:* Borodale. *Rosa tomentosa:* Moidart. *R. spinosissima:* Eig. *Pyrus Aucuparia. Lythrum Salicaria:* Borodale; Shiel Bridge. *Epilobium montanum. E. alsinifolium:* Roshven. *E. tetragonum, E. palustre:* Sminisary. *Montia fontana:* Eilan Teona; Brevah. *Sedum Telephium:* Canna; Ardnamurchan Point. *S. acre:* Ardnamurchan Point. *S. anglicum:* Moidart. *Rhodiola rosea:* Roshven. *Saxifraga stellaris:* Scuir Dghonaldgh. *S. aizoides:* Glenulg. *Chrysosplenium oppositifolium, Sanicula europæa, Ægopodium Podagraria:* Moidart. *? Sium latifolium:* Salen. *Daucus Carota:* Dorlan. *D. maritimus:* Sminisary. *Eryngium maritimum:* Eig. *Galium verum:* Ardnamurchan. *G. palustre:* Ben Rissipole. *Asperula odorata, Valeriana officinalis, † V. pyrenaica, Scabiosa succisa:* Moidart. *Eupatorium Cannabinum, Petasites vulgaris:* Eig. *Aster Tripolium:* Strontian; Moidart. *Gnaphalium sylvaticum:* near the Mines, Strontian. *Antennaria dioica:* Scuir Dghonaldgh; Eig. *Matricaria Chamomilla:* Oard. *Achillea Ptarmica:* Moidart. *Onopordum Acanthium:* Eig. *Hieracium boreale, ? H. umbellatum:* Roshven. *Lobelia Dortmanna:* Loch Aylort. *Calluna vulgaris alba, Erica Tetralix alba:* Canna. *Arctostaphylos Uva-ursi:* Porst-a-haught. *A. alpina:* Roshven. *Gentiana campestris:* Eig; Borodale. *G. nivalis:* Irin. *Erythræa Centaurium:* Canna; Eig. *Menyanthes trifoliata:* lochs above Moidart. *Lycopsis arvensis:* Canna; Killchoan. *Mertensia maritima:* Borodale; Eig. *Orobanche rubra:* Canna Castle. *Digitalis,* var. *alba:* Ardtoe; Dorlan. *? Scrophularia vernalis:* Kinlochouchra. *Pedicularis palustris:* Moidart. *P. sylvatica alba:* Loch Shiel. *Bartsia alpina:* Eig. *Veronica scutellata, V. humifusa:* Moidart. *V. officinalis:* Scuir Eig: very fine. *Scutellaria galericulata:* Juniper Island, Loch Moidart. *Galeopsis Tetrahit, G. versicolor:* Mingarry; Moidart. *Pinguicula vulgaris:* Moidart. *P. lusitanica:* Moidart; Kyles Môr. *Anagallis tenella:* Canna; Eig. *Glaux maritima:* Strontian; Canna. *Samolus Valerandi:* Arasaig. *Plantago Coronopus:* Scuir Dghonaldgh. *Salsola Kali:* Dorlan. *Schoberia maritima:* Arasaig. *Chenopodium rubrum:*

Morar. *C. ? botryoides:* Augcle; Canna. *Beta maritima:* Canna. *Polygonum maritimum:* Sminisary. *Oxyria reniformis:* Scuir Dghonaldgh. *Empetrum nigrum:* Porst-a-haught, etc. *Myrica Gale:* everywhere. *Juniperus communis:* Juniper Island, Moidart. *J. nana:* Eig. *Narthecium ossifragum, Triglochin palustre, Orchis mascula, O. maculata, O. latifolia, Gymnadenia conopsea, Habenaria bifolia:* Moidart. *H. viridis:* Eig. *? Epipactis ensifolia:* Craig, Moidart. † *Mimulus luteus:* Dallalae; frequent. *Polypodium vulgare. P. Dryopteris:* Scuir Eig. *P. Phegopteris:* Ardmollach. *Cystopteris fragilis:* Swordale Horrach. *C. dentata:* Scuir Eig. *Polystichum aculeatum:* Moidart. *Lastrea Filix-mas;* var. *paleacea*, more common than *F.-m.*; var. *multifida*, Borodale; var. *pumila*, Eig; *L. Oreopteris; L. multiflora;* var. *dumetorum*, Moidart; var. *fuscipes* (Moore), Eilan Teona, Rishkea; var. *nana*, Scammerdale. *L. Fœnisecii*, frequent; var. *ramosa*, Craig road, Moidart. *Asplenium Trichomanes. A. Ruta-muraria:* Mingarry; not common. *A. marinum:* Eig; Canna; Ardnamurchan Point; very fine in the Macdonald's Cave, Eig. *A. Adiantum-nigrum:* frequent. *Scolopendrium vulgare:* Oldmaids, Moidart; rare. *Blechnum boreale*, var. *bifidum:* Craig road. *Hymenophyllum Wilsoni:* Craig; Ardmollach. *Osmunda regalis:* Strontian. *Botrychium Lunaria:* Eilan Teona. *Lycopodium clavatum, L. alpinum:* Scuir Dghonaldgh. *L. Selago:* Glen Forslen; Eig. *L. selaginoides:* Clachnavaniea. *Allosorus crispus:* Roshven. *Athyrium rhæticum, A. Filix-fœmina*, Glen Moidart; var. *molle*, Glenulg. [*Lastrea spinulosa:* Dunkeld.]

I do not know if it is necessary to explain that Eig and Canna are two basaltic islands off the west coast; that Roshven, Ben Rissipole, and Scuir Dghonaldgh are mountains near Kinlochmoidart; and that Eilan Teona, Rishkea, and Juniper Island are islands in Loch Moidart. *L. multiflora fuscipes* is a variety frequently mistaken for *L. spinulosa*, which it strongly resembles. The true *spinulosa* I found afterwards at Dunkeld. The forms of *Blechnum* and *L. Fœnisecii* which I have called *bifidum* and *ramosa* were quite new to me, and are not noticed by Mr. Moore in the "Nature Prints:" the former especially is very curious, being divided after the fashion of *Polypodium vulgare bifidum*, the latter like *Filix-fœmina polyclados*.

THE NIGER EXPEDITION.

A Letter from Mr. C. Barter.

Free Town, Sierra Leone, May 12th, 1857.

My dear Sir,—In my hurried departure from England I had not time to call on you ere leaving. The mail, at first delayed by an accident, then put to sea some time before my notice first received indicated: hence adieus to friends were hastily paid, and I regret in some instances altogether omitted. Pardon me in your own case, and accept the explanation offered. I have been here about three weeks with Dr. Baikie, and Mr. Dalton, who accompanied him as zoologist in his former expedition up the Niger; we therefore comprise the advanced corps of the present enterprise. It being necessary to make preparations here, Dr. Baikie is busy with "palavers," and in selecting his interpreter for the languages of the various countries to be visited (and here perhaps there is scarcely a nation in Africa that is not represented by some wanderer, drawn to the colony through trade or for protection). This completed, we shall proceed on to Fernando Po, where the small steamer from England will join us; we shall then muster some twelve or thirteen Europeans with from fifty to a hundred Kroomen, and proceed up the river early in June.

The stay here gives me an introduction to the peculiar vegetation of this climate. With Mr. Dalton I have run over most of the mountains near the town, and scrambled up the deep ravines which abound betwixt them. So much novelty renders these spots almost enchanting. As we wind through tangled plants, or crawl over masses of rock, my friend captures his unfortunate lizards, snakes, and beetles, and consigns them to the world of spirits, attacked in turn by the ants, which seem keenly aware of the importance of anatomical specimens, and would soon produce a skeleton in the human subject.

In some sheltered nooks an immense number of species are found in a small area. Epiphytes and parasites abound on the rocks and trees. Ferns here, now Orchids, which sit on the branches as if fallen from the clouds; climbers smothering the plant that supports them; huge *Ficus* throwing its mazy roots round some ancient tree, which is fast decaying—dying in the grasp of the giant that encircles it;—plants above our heads;

plants under our feet; life on everything. Vasculums are filled, India-rubber bags are crammed; our sable attendant takes up the load now with an audible groan, plainly intimating that he at least has obtained sufficient.

In these rambles the intense heat of a vertical sun falling in these deep valleys is scarcely felt during the time; afterwards, from the profuse perspiration, a degree of lassitude prevails, rendering the arranging and pressing of the plants collected during the day, in the evening a weary occupation. I manage differently now, always endeavouring to reach home before being too much exhausted. Two other things are also troublesome: if plants are carried long in a case in the sun, the heat causes leaves and flowers to fall off; ants also have no fastidious palate, but devour everything in their reach, or even where you fancy it out of it.

Of the Botany and products of this colony, at some future time I will give you a brief outline. A few notes on the British plants observed at the points touched at during the voyage here may not be uninteresting, as illustrative of the outlying posts of some species, or cosmopolite habits. In one hour at Madeira of daylight a few species only could be obtained; the following only (British and exotic) were gathered, viz. *Helichrysum obconicum, Sempervivum glutinosum, Coronöpus didyma, Calendula pluvialis, C. arvensis, C. parviflora, Cynodon dactylon, Matthiola maderensis, Festuca bromoides, Carduus* sp., *Antirrhinum Orontium album, Galium Vaillantii, Chrysurus aureus, Fumaria officinalis, Lamium annuum, Convolvulus Batatas, Plantago Lagopus, Echium fastuosum, E. violaceum, Tragus racemosus, Polygonum aviculare, Silene gallica, Mercurialis exigua, Sinapis arvensis, Torilis* sp., *Parietaria lusitanica, Erodium moschatum, E. cicutarium, Urtica lusitanica, Trifolium* sp., *Medicago orbicularis, Tolpis nudicaulis, Lycopersicum esculentum, Scandix Pecten-Veneris, Psoralea bituminosa.*

The above were gathered almost *in* Funchal, on the western side, betwixt the road and sea. At Teneriffe we found vegetation assuming a more tropical character; such genera as *Euphorbia, Kleinia, Plocama,* are recognized before reaching the shore, covering the steep barren rocks in many curious forms. The immediate vicinity of Santa Cruz is very barren; at the time we visited it, hot and dry, well adapted for producing the Cochineal; *Opuntia* is therefore the principal feature. During a walk of two hours

we gathered the following:—*Nothochlæna lanuginosa, Monanthes polyphylla, Lavendula pinnata, Cynosurus* sp., *Asteriscus aquaticus, Rumex maderensis, Ononis* sp., *Helichrysum obconicum, Plantago Cynops, Amaranthus* sp., *Centranthus Calcitrapa, Ervum pubescens, E. tetraspermum, Lithospermum arvense, Euphorbia,* three species, *Medicago* sp., *Anagallis cærulea, Papaver Argemone, P. Rhœas, Polycarpon tetraphyllum, Cichorium Intybus, Arenaria rubra, Hordeum murinum, Sisymbrium Irio, Echium violaceum, Malva parviflora, Cynodon dactylon, Amaranthus prostratus, Eustachys petræa, Artemisia argentea, Scorpiurus subvillosus, Polypogon monspeliensis, Plantago Lagopus, Dianthus prolifer, Datura Metel, Nigella sativa, Trifolium* sp., *Galium* sp., *Cuscuta Epilinum, Trifolium arvense, Medicago* sp., *Carduus* sp., *Lythrum Græfferii, Briza maxima, Cotyledon luteum ?, Tollium* sp., *Phalaris canariensis, Chenopodium album, Briza virens, Mesembryanthemum glaciale, M. crystallinum.*

Speeding onward through the Tropics, we touched next at Goree, a French settlement, on a rock destitute of vegetation. The African coast, generally speaking, after passing Cape de Verd is flat, a shore of white sand, bordered by a dark line of vegetation, broken only by a magnificent *Bombax* or an occasional Oil-Palm, which rear their heads sufficiently above the uniform line to render them distinct some distance at sea.

At Bathurst, on the Gambia, I had my first introduction to African plants; it is however a low, sandy spot, with lagoons and Mangrove-thickets. At this season everything is burnt up; I therefore gathered few species in flower. It is not a favourable residence for Europeans: evidence is not wanting on the tombs of the old, overgrown cemetery for the "White," that life is short here.

Sierra Leone, viewed from the sea, is very beautiful; neither is the charm broken when landing, as is usually the case. Broad streets, green with a short grass; huts, houses, and stores dotted among Cocoa-Palms, Bananas, and the various fruit-trees of the Tropics give a pleasing aspect to African life. Mountains of considerable elevation rise behind the town, and everywhere the land falls sharply to the sea; no water can lodge, no swamps occur. Native vegetation is everywhere cleared sufficiently so as to render malarious influence from this source impossible: hence it is difficult to believe that such a place can be unhealthy; still this is not borne out in fact so satisfactorily as the appearance of the place generally would lead us to hope for.

The only inhabitant of our Islands that I have met here is *Pteris aquilina,* somewhat changed, hirsute, and delicately cut, even sometimes approaching *P. scaberula;* still I believe in its identity with our Brake, growing under altered conditions.

I have been in Sierra Leone now three weeks; allowing twelve hours' daylight, deduct half in tornadoes and fierce sunshine, leaves far too little for doing as much as could be desired. I find so many plants new, with which I thought myself familiar, but here present such an altered character, that I am frequently much puzzled. Epiphytical *Orchideæ,* supposed to be poorly represented in Africa, are most common in this neighbourhood. I have already collected some thirty species for sending home; many others, I make no doubt, could be procured if the lofty trees were accessible. The huge limbs of *Bombax* are sometimes literally covered with various *Angræca, Bolbophyllum,* etc.; but they rise a hundred feet from *terra firma.* Ferns also abound in the dense, shady declivities of the Sugar-loaf Mountain. As we proceed on to Fernando Po by this mail, I will give therefore a few notes on this place some other time. At present I enjoy perfect health, which I trust I may retain for some grand enterprise.

I remain, yours truly,
C. BARTER.

IRISH BOTANY.

Note on the occurrence of Salix procumbens, *Forbes, and other plants not previously noticed as Irish species. By* D. MOORE, *Glasnevin.*

In the summer of 1854 I made a hasty botanical tour to the Benbulben district in the county Sligo, accompanied by Dr. Melville of Galway, for the purpose of collecting plants and specimens of *Arenaria ciliata,* that being the only locality where it has yet been discovered to grow in the British Islands.

When examining the high cliffs of the Ben and adjacent mountains, we observed some dwarf species of *Salix* growing among them, which I had not previously seen elsewhere in Ireland. At the time we made the visit (end of July) the Willows had passed their season of flowering, but I brought plants of those which were unknown to me to the Botanic Garden, where they flowered freely last spring. Among them one turns out to be *Salix procumbens,* Forbes, both male and female plants. Another nearly allied species, with downy germens, and catkins produced at the subterminal buds of leafy persistent shoots, having a more upright habit than the former, with smaller and differently formed leaves, has not yet been properly determined. I have considered the occurrence of these species in this country worthy of being recorded, more perhaps on account of their geographical range than for their rarity, they being the only truly northern forms of Willows (*Salix herbacea* excepted) which have yet been found in Ireland. I may add that the Benbulben range, as a whole, produces more plants of the alpine type than any other of our mountain ranges, and would repay a botanical visit better than most of them, if general herborizing were the only object.

In the lists of Irish plants supplied by your English correspondents who from time to time visit this country, as well as those sent by my friend Mr. J. Carroll, of Cork, I have failed to notice included in any of them *Myosotis repens,* Don, *Potamogeton polygonifolius,* Bourr., and *Potamogeton plantagineus,* Ducruz, though they are all good species, as that term is generally understood, and of frequent occurrence in Ireland.

With a view of procuring plants and specimens of some of the Robertsonian section of Saxifrages, I paid a hurried visit to the Killarney range of mountains last month, where I saw plenty of all the kinds previously noticed to grow there, with the exception of *Sax. elegans,* Mack. Though I searched the locality given by Dr. Mackay, namely, the top of Turk Mountain, I could not observe any plant which was not referable to either *Sax. umbrosa* or *Sax. Geum.*

I had occasion in a former communication to the ‘Phytologist,’ to remark on the paucity of species produced in a given area in the west of Ireland, compared with the east; an observation which is exemplified in a remarkable degree by the Killarney district, where mountain, lake, and plain are all present. For instance, on Carntual Mountain, which rises to an elevation of nearly 3350 feet above the level of the sea, amongst extensive ranges of lower hills, we might naturally expect to find a considerable number of at least subalpine plants, such as *Salices, Hieracia, Carices,* etc., which is not the case. I did not observe a single species of *Hieracium* on that high mountain, nor one on Turk. The whole range seems remarkably barren in species, though they produce so many of the plants which are confined to the south-west of Ireland, in so far as the British and Irish Floras are concerned. *Pinguicula grandiflora* abounds there, and had just passed flowering; but I got a good supply of plants and some specimens still nearly in bloom. The severe winter of 1855 seems to have proved fatal to a good many of the *Arbutus*-trees, even at Killarney, where the temperature is so much milder than it is in the eastern and midland counties; and as for *Trichomanes speciosum*, I fear it will soon have to be numbered among the plants which once grew there. The idle fellows who call themselves guides, make quite a trade of procuring this plant and selling it to visitors, for which purpose they tear it up everywhere they can lay hold of it. I visited two localities, where I saw it in considerable quantities in 1843, but not a morsel of it is to be found there now.

I was able to collect a good supply of specimens of the large *Jungermannia Woodsii* on Carntual, and some of *Sticta macrophylla* at Cromaglowan. Among the more conspicuous species of Lichens which have not yet, so far as I am aware, been enumerated as Irish, I observed *Stereocaulon denudatum* growing on rocks near where the upper and lower lakes of Killarney join, and on the north side of Carntual I picked one specimen of *Nephroma parilis*. The former of these I had found some years ago in Connemara, and the latter on a mountain near Glenarm, in the county Antrim, in 1838.

The form of *Equisetum* called *E. Wilsoni* still grows in the lower lake, not far from Mr. Herbert's house, though whether it be the same plant as that originally found by Mr. Wilson in that locality I cannot say, but certainly it is specifically identical with that which grows in the canal and other places in the county Dublin. This again appears to be the same species which I observed last autumn growing in the high valley of the Jugadine, near the Bavarian Alps, probably *E. variegatum* of Weber and Mohr. Living plants from the latter locality are now in this garden, and may yet serve to unravel some of the doubts concerning forms supposed to belong to this species.

ANEMONE PULSATILLA, etc.

By Alexander G. More, F.L.S.

Sir,—In reference to J. B.'s remarks upon *Anemone Pulsatilla* and *Astragalus hypoglottis* ('Phytologist,' vol. ii. p. 149,) I am quite ready to admit that they were perhaps improperly classed with other plants that might be expected to occur upon the chalk downs of Kent, and that J. B. is probably quite correct in referring their absence from that district to a peculiarity in their distribution. The few species mentioned in my paper ('Phytologist,' New Series, vol. i. p. 292) for the sake of illustration, were set down from memory and without any 'Cybele Britannica' at hand.

That the two plants in question may be restricted in their range by some condition of the soil is very possible, but I fear J. B.'s explanation will not be sufficient, for I cannot agree with him that the *Anemone* is confined, as he supposes, to a portion only of the chalk. Are there not certain localities in Yorkshire where it grows upon different limestones? and is not the Gloucestershire habitat upon the oolite? Besides, J. B. is in direct opposition to the author of the 'Cybele,' who expressly says, "On chalk downs *and limestone;*" while the French Flora of Grenier and Godron is content to indicate simply a preference for "*dry slopes.*" As for *Astragalus hypoglottis,* the "sandy links" of Northumberland and Durham, and several Scotch localities, sufficiently disprove any exclusive partiality on its part for the lower chalk.

There is a somewhat similar instance of an interrupted area in the range of *Seslerea cærulea,* which, though occurring upon the limestones of Yorkshire and the west of Ireland, and again upon the chalky hills of Normandy, still fails between these two points on our downs, though one might suppose their soil very well suited to its growth: whether this be owing to deficiency of moisture, to something in the hardness of the ground, or to some accidental cause, is not easy to explain. Still, when we find some of the best Continental authorities almost giving up the chemical action of the soil in favour of its mechanical consistency (whether easily disintegrated or not), does it not become us to be all the more careful to avoid excess on the other side in attempting to restrict plants to the narrow limits of any particular geological stratum? And when we see the *Astragalus* and others equally affecting the English chalk and the mountain limestone of the west of Ireland, would it not be safer to speak of them as lime-loving species than as restricted to any one formation? We must take a wider view of the partialities of a plant, to say nothing of its Continental distribution, before any permanent conclusion can be expected.

In answer to another inquiry, apparently referring to the same paper, I may mention that, by "the well-known Cuxton plants," *Salvia pratensis* and *Althæa hirsuta* were intended.

SPECIES DEFUNCTÆ.

Plants supposed to have disappeared in England.

1.—SONCHUS PALUSTRIS.

In the 'Sylloge Floræ Europææ,' published in 1854–5, and of which there is a fresh supply arrived, and to be had at 45, Frith Street, Soho Square, the above plant is stated to be at home in Switzerland, Austria (Bohemia), Germany, Holland, Denmark, England, Scotland, Belgium, France, Spain, Italy (Piedmont and Lombardy), Corsica, Greece (Elis), Hungary, Transylvania, and in the south and centre of Russia. It is now upwards of a quarter of a century since it was seen growing wild in England; at least we have not heard of a specimen gathered from a *wild* station in the British Isles since it was found by Mr. Joseph Woods and Mr. Kippist. The latter gentleman showed us a few fragments of the plant gathered in the said place in 1830. It is not in the Danish Flora of O. F. Müller, published in 1766; but as it is a Dutch plant, it may be expected in Denmark. Hudson, Fl. Anglica, 1762, states its locality as follows: "Habitat ad ripas Thamesis non procul Greenvico et circa Blackwall;" and refers to Ray. Smith, in E. Flora, vol. iii. p. 342, says that it grows "in marshes near the banks of large rivers about Greenwich and Blackwall," and quotes Ray and Curtis; also near Streatham Ferry, Ely, Kelham. In the valuable Salopian Flora of Mr. Leighton, this rare plant is stated to have been "in a wild lane, near Wellington, by E. Lees, Esq." We wish our learned correspondent Mr. Lees would send us some particulars about this fine species. It has been hunted for about Blackwall, Greenwich, and other places, where it was certainly found, and there is reason to fear that it exists in these no longer. The following query is respectfully submitted to our correspondents: Has *Sonchus palustris* been seen in or collected from a natural station since 1830? [illegible]

2.—ELYMUS GENICULATUS.

This fine Grass has for several years been a desideratum among the collectors of British Grasses. Garden (cultivated) specimens are *now* uncommon; a genuine wild example has not been seen in Britain during the last quarter of a century, since Dickson first observed the plant growing on the bank of the river near Gravesend. In the 'Sylloge Floræ Europææ,' p. 423, its range is stated as follows:—*Both.* (south of Sweden), *Angl.* (England), *Batav.* (Holland), *Belg.* (Belgium). Any information about the occurrence of this species on the continent of Europe would be very acceptable. English examples are scarcely expected. N.B.—Curtis's account of *Elymus geniculatus* is the only one which we have seen that is considered to be of any authority; all subsequent notices appear to be either copies of his or *mistakes.*

3, 4.—SENECIO PALUDOSUS *and* SENECIO PALUSTRIS (CINERARIA PALUSTRIS).

These appear to be a pair of our defunct plants. The European range of *Senecio paludosus,* as stated in the 'Sylloge' above referred to, is Austria (in part), Germany (North), Holland, Denmark, South of Sweden, England, Belgium, France (North), Spain, Transylvania, Russia (South and Centre), Italy (North), Hungary.

The only British locality given for this plant is Streatham Ferry, near Ely. Hudson quotes Ray as follows:—"Habitat in fossis palustribus earumque aggeribus in insula Eliensi, near Stretham Ferry." (Found both in the marsh ditches and on the ditch banks near Stretham Ferry.) Relhan, in his 'Flora Cantabridgiensis,' informs us that it was not to be found there in his time, and he was contemporary with Hudson. *C. palustris* (*Cineraria palustris*) is another of the Stretham Ferry plants. This is stated by Smith, E. Flor. vol. iii. 34, to be found in Norfolk. Has this plant been seen in the latter-named county since the publication of the English Flora?* Is there any other authority for its being a Norfolk plant besides Sir J. E. Smith's? Any information respecting these lost plants will be thankfully received.

Reviews.

Directions for the Preparation and Management of the Marine Aquarium. By R. M. Stark, Edinburgh.

The lovers of this branch of natural science (aquatic plants and animals) will thank Mr. Stark for the plain, sensible, brief, and practical manual which he has composed for the guidance of all who, like himself, admire the hidden or rather unnoticed agencies whereby water is preserved in a state of purity. It is far from being generally known that this popular drawing-room *toy* does illustrate the principle whereby not only water is preserved in a state of purity, but the still more important fact that there is a balance between the animal and vegetable kingdoms which cannot be seriously disturbed without fatal consequences to both. For example, the animal part of the creation absorbs and assimilates what the vegetable part rejects. The animal inhales oxygen as the vital principle, and gives out carbon; the plants exhale oxygen and imbibe or absorb carbon, and thus the balance is maintained.

Our author however contents himself with showing how the plants and animals in the aquarium may be kept in a healthy state, without troubling his readers about first principles, which few have patience to read and still fewer have *strength of will* to carry out or apply their several bearings upon creation in general. We will imitate his example, and limit ourselves to individual facts. Mr. Stark informs us that the green *Algæ* (*Chlorosperms*) are among the plants best suited for the aquarium, and of these he specially selects the broad-leaved *Ulva*. Next to this are recommended plants of *Enteromorpha, Conferva,* and *Cladophora*. Afterwards are enumerated the red-spored *Algæ* (*Rhodosperms*), and others, *quæ nunc præscribere longum est.*

Mr. Stark, like a true son of humanity, cautions or warns his readers to beware of overcrowding their *aquaria* with animals.

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* Our obliging and accurate correspondent Mr. Notcutt could probably answer this question.

He says: "One is very apt, on first starting, to get a host of shell and star fish, actinias and other zoophytes, and plunge them by the dozen into a vessel fitted to maintain in a proper state of health scarcely half-a-dozen creatures of ordinary size. It is no wonder, when we consider the conditions necessary to their existence, that after a few hours the greater number are (*sic*) dead."

It is devoutly to be wished that landlords and other friends of humanity would take a leaf out of Mr. Stark's book, con it well, and bethink themselves that human creatures cannot obtain conditions fitted to maintain them in a proper state of health when twenty-four are lodged in a space unfitted to accommodate more than half-a-dozen. It is true that the human subject is able to endure more privations, both of air and sustenance, than these modern fashionable pets of the drawing-room; but there is a limit of endurance beyond which even the constitution of men, women, and children must suffer loss, and some individuals may perish. Mr. Stark's book is warmly commended to those who take an interest in these not unuseful observations and studies.

Lawson's Microscopical Series of Commercial and Medical Products.

We have much pleasure in noticing this series of preparations, for hereby useful knowledge is diffused. The first series (Nos. 1–24) is now ready for delivery, embracing the more important articles of food, viz. those in which the starch granule affords the distinctive characters. As critics we take an exception to the term *medical.* We have two adjectives from the same root, *medeor.* The one above is *medicus,* which, used substantively, means a physician. The other, which is the proper one to qualify drugs or prescriptions in general, is from *medicina,* a medicine, adjective *medicinal.* High authorities, however, even in Edinburgh (once called the modern Athens), employ both *medical* and *medicinal* indiscriminately; and our author may avail himself of the maxim laid down by Horace, and plead practice, or old use and wont:—*Vult usus,*

> "Quem penes arbitrium est et jus et norma loquendi."

BOTANICAL NOTES, NOTICES, AND QUERIES.

BLECHNUM BOREALE, ETC.

Sir,—In answer to "Beta" (see 'Phytologist,' N. S., vol. ii. p. 143), I beg to state that in my List of the rarer British plants near Chiselhurst, it was my particular wish that the specific name of *Blechnum* should terminate with "*s*," for the reasons there stated, and as there is no possibility of forming the word *spicant* from the verb *spico* (I make sharp at the end, etc.) except in the third person plural of the indicative mood, which construction it would be too absurd to suppose the great Linnæus guilty of. Is it not therefore much more probable, nay even certain, that he wrote it *spicans* (from the participle of the present tense used as the adjective), and that the "*s*" was written, as it very frequently is nowadays, like a "*t*," carelessly, and the error thus propagated?

Chiselhurst, June, 1857. GEO. B. WOLLASTON.

ASPLENIUM ANCEPS.

This is recorded in the 'Phytologist,' vol. ii. p. 71, as if it was a new discovery. I gathered it at Killarney in 1843, but did not identify it with Solander's plant until ten years afterwards. It seems to be only a form of *A. Trichomanes*, under which it is noticed in Newman's 'Ferns,' ed. 3, p. 249, published in 1854, and my Manual, ed. 4, p. 426.

C. C. BABINGTON.

REIGATE PLANTS.

Sir,—Your correspondent J. S. Mill, in his Notes on the Reigate Flora ('Phytologist,' vol. i. p. 337), remarks that the absence of *Arabis hirsuta* from the immediate neighbourhood of Reigate is a curious anomaly. I was somewhat surprised to notice this remark on looking over the 'Phytologist' some time since, for when I was passing through Reigate, in the spring of this year, I chanced to notice and gather the plant in question on an old wall in the town itself, on the right-hand side of the little byelane leading down to the park gates. Can this habitat have escaped the notice of the successive editors of Reigate Floras?

Castleton of Braemar, Aberdeenshire. JOHN BARTON.

SILENE CATHOLICA.

This plant was found in the village of Great Livermere, near Bury St. Edmund's, Suffolk. The collector wishing to procure this must enter the park, from the village above named, by the "park gates," or obtain permission from the gate-keeper to pass through the lodge on the left-hand, and then proceed a short distance southward, amongst the trees separating the park from the grounds of the parsonage house, where its habitat may be found with no difficulty. Just within the iron fencing forming the boundary of the "old garden," in the park, may be found *Astragalus Hypoglottis*, near the gate opposite the bridge that divides the large sheet of water. It is but a short walk from the station for the *Silene*. In an old pasture in the same village, at the end of Ixworth lane, there is a plant having very much the appearance of *Gymnadenia conopsea* in its botanical characters, but it has a fetid odour, and is in flower a fortnight earlier than the deliciously sweet true species: it may prove worth investigating.

GEORGE WOLSEY.

BOTANICAL CORRESPONDENCE.

The following is a quotation from a letter of Mr. B. M. Foster's, written in 1800, from Boconnoc, near Lostwithiel, and addressed to one of his relatives:—

"You would, I think, like these delightful woods much: there are beautiful walks in them. I have found several quite new plants—that is, new to me—in a *wild* state: *Bartsia viscosa* in thousands, *Ligusticum*, etc."

The two following extracts are from the correspondence of Mr. Ed. Forster, in a letter from Bath, 1809:—

"I was lucky enough yesterday to find a plant which Dr. Smith wanted for 'English Botany,' *Carex davalliana*. I doubted its growing in the place mentioned; but after searching a little in the only part of Landsdown likely for it, I discovered it, but not in great plenty. I packed up a box and sent it off for Sowerby last night by the mail, which, if T. or B. should see him, I wish they would ask him whether he received it; if not, he had better inquire at the mail coach-office."

"I have been out riding, and found an *Ornithogalum*, not yet in flower, but looks as if it would be white, and a spike; the leaves are whitish also. I have likewise found a much larger one, which I should suppose was *Hemerocallis flava* or *fulva*, if it did not appear wild. I have gathered much, so I shall see what it turns out."

HYPERICUM PERFORATUM.

Sir,—In describing this, Hooker, in his 'British Flora,' says, "There are minute black dots on the tips of the calyx, corolla, and often on the leaves. Similar dots may also be seen on the anthers with a moderate lens." Are these *dots* glands? if not, what purpose do they serve?

Ryde, July, 1857. S. B.

PROPOSED NEW FLORA OF DEVONSHIRE.

We have much pleasure in offering the following announcement to the notice of our readers, and solicit their aid on behalf of its author.

Flora Devoniensis.—It is in contemplation shortly to publish a new list of the Flowering Plants and Ferns of Devonshire, with habitats of the rarer ones. The Editor will feel much obliged to any readers of the 'Phytologist' who will favour him with additions to, or corrections of, the old 'Flora Devoniensis.' The new list will be arranged on the Natural System, and printed after the fashion of Watson's 'New Botanist's Guide.'

Address, Rev. T. F. Ravenshaw, Oxford and Cambridge Club, Pall Mall.

PLANTÆ RARIORES ABREDONENSES.

W. Sutherland, M.A., will be prepared to issue, during the seasons 1857–8, the following collection of dried plants from Aberdeenshire, including the rich alpine flora of Braemar; each fascicle to contain 100 species, neatly mounted and in a case. Price 21*s*. each. Fascicle I. 100 species of the rarer plants of Aberdeenshire. II. The remainder of the above, including the genera *Rubus*, *Rosa*, *Hieracium*, etc. etc. III. The rarer Ferns, Mosses, Lichens, etc.

Subscribers' names for any of the above may be sent to W. S., 18, Bon-accord Terrace, Aberdeen, or to Mr. Irvine, 28, Upper Manor Street, Chelsea.

PLANTS IN CHURCHYARDS.

Allow me to correct an error in the quotation, page 189, in the August number of the 'Phytologist.'

The passage in 'Cymbeline' (Act 4, Scene 2) is as follows, and its beauty should not be injured.

> "With fairest flowers,
> Whilst summer lasts, and I live here, Fidele,
> I'll sweeten thy sad grave; thou shalt not lack
> The flower that's like thy face, pale primrose; nor
> The azur'd harebell, like thy veins; no, nor
> The leaf of eglantine, whom not to slander,
> Outsweeten'd not thy breath."

In the same Act there is the following:—

> "Here's a few flowers; but about midnight more:
> The herbs that have on them cold dew o' the night
> Are strewings fit for graves."

In 'Pericles, Prince of Tyre,' is the following:—

> "The yellows, blues,
> The purple violets and marygolds,
> Shall as a carpet hang upon thy grave
> While summer days doth last."

S. B.

TANSY.

"M. de Morogues announces that this plant, dried, is excellent food for sheep, and that, when fresh, it makes capital litter for domestic animals. Its peculiar balsamic odour most effectually drives away fleas; a lapdog sleeping on a bed of fresh Tansy is immediately freed from these vermin. It should be renewed when the leaves are quite dry. This seems a better application of the plant than following the example of our ancestors,—making it into cakes, and employing it as an ingredient in puddings."—*Gard. Chron.*

BRASSICA OLERACEA.

A correspondent asks what evidence there is of the fact stated by Mr. Cheshire in the December number of the 'Phytologist,' p. 494, viz. "The cabbage of the sea-shore is the same species as the cabbage of the garden, or rather was the parent of the cultivated varieties"! And again, on p. 495: "The experiment is perfectly fair in the case of trying to cultivate *Triticum sativum* from *Ægilops ovata*." Is it a fact that the Winter Wheat (*T. sativum*) has been produced from any *Ægilops?*

ANSWERS TO QUERIES.

"The north coast of Sunderland" (see 'Phytologist' for June, 1857, and Hooker and Arnott's 'British Flora,' 7th edition) is a typographical error for "the north coast of Sutherland."

Decurved signifies that the curvature is in a direction *from* the stem or centre of growth. *Reflexed* means that the object so qualified is *bent* from the axis or stem, *i. e.* downwards, if the stem be erect. These nice distinctions are often more troublesome than useful, as leaves and branches, etc. may be both decurved and reflexed on the same plant.

MUSTARD.

The paper on Economical Botany in the 'Phytologist' for June (p. 128), by Mr. George Jordan, is highly amusing; when I came to the word *Mustard*, the inquiry was put to me, "What is this word *Mustard* derived from?" Will you please inform your readers in general, as well as

IGNORAMUS.

BRITISH HIERACIA.

(*From the 'Natural History Review.'*)

Every one familiar with *Hieracia* knows that the alpine kinds especially are subject to infinite variation; and we suspect that it will be more easy for future explorers of the Highlands to discover a dozen other equally distinct types, than to refer, with certainty, the forms that may occur in their rambles to those now attempted to be defined by Mr. Backhouse. We shall have a repetition of the story of *Rubus fruticosus* and *Solanum tuberosum;* and supposing the other genera of *Compositæ* to advance at the same rate, we may soon expect a galaxy of new Dandelions and Cat's-ears. Surely the varieties of *Leontodon Taraxacum*, *Apargia autumnalis*, *Hypochœris radicata*, and other common plants, are as deserving of special description and name as some of the forms now separated from *Hieracium alpinum* and its allies. Most of our common field and wayside *Compositæ* might be similarly treated; and *Arctium* already shows, by the addition of *three* new names, what may be done when such common plants as Burdocks are properly investigated and minutely examined. Obviously we do not yet know the riches of our fields.

[Can any reader inform us what is "the story of *Rubus fruticosus* and *Solanum tuberosum*"?]

EXCHANGES OF BRITISH SPECIMENS.

I see, by some recent numbers of the 'Phytologist,' that a medium of communication for exchanging specimens has been adopted for the benefit of subscribers and others; would you kindly inform me how one's name* can be put upon the list, as I should like to profit by the opportunity. My herbarium numbers nearly 1000 species, and I have many duplicates of many of the rarer chalk plants, also of the very rare *Isnardia*, which my father was fortunate enough to discover, for the second time in England, on Petersfield Heath, some twenty years back.

J. B.

* We shall have much pleasure in giving publicity to our correspondent's request, if he will send us his name and address, also a short list of what specimens he wants, and what he has to exchange for his *desideratæ*.

MEDICAGO MACULATA.

Do the *spots* which are generally found on the leaves of this plant *disappear* during its flowering, so that it might be mistaken for *Medicago denticulata?* M. JOLLIFFE, *Ryde*.

What is the etymology of *Berberis?*

Does *Corydalis solida* grow still in groves and thickets in Lavan's Park, five miles from Kendal, or in any of the other stations recorded in Withering's arrangement of the British Plants?

What are the merits of the Osage Orange-tree (*Maclura aurantiaca*) as a hedge plant?

Is *Cochlearia officinalis* an annual plant in mountainous or alpine places? This species, like several of our maritime British plants, is not restricted to the seacoast. It is plentiful in the Craven district of Yorkshire, at no very great elevation, and on some of the hills occurs at a very considerable altitude.

'Phytologist,' p. 20, Mr. Davies writes: "The paucity of wood and rocks renders the hills not very *prolific*." Animals are prolific or non-prolific: the earth or the hills are fertile or barren. "Prolific" is from *proles*, and "fertile" from *fero*, I bear. ZOILUS.

Our correspondent's (W. M.) suggestion of publishing annual amended lists of Cryptogamous species is under consideration.

The Fern sent by Mr. J. Jones, parish clerk of Llanderfel, is *Lastrea Oreopteris*, var. *truncata*, T. Moore, a very interesting, and by no means a common variety.

Communications have been received from

F.L.S. (Walsingham Abbey); W. P.; John Barton; Sydney Beisly; C. Cardale Babington, F.R.S. (two communications); J. S. Mill; J. H. Davies; Maxwell Masters; Charles Howie; W. Molyneux; John Lloyd; George Lawson, Ph.D.; Rev. Hugh Macmillan; F. B. W.; Rev. T. F. Ravenshaw; W. S.; C. C. Babington, F.L.S.; J. Jones, Llanderfel.

BOOKS RECEIVED FOR REVIEW.

Molyneux's Trentham and its Gardens.
Smith's Catalogue of Ferns.
The London Botanical Society's Catalogue of British Plants, fifth edition.

ERRATA.

At page 186 occur the following words:—"It is well known that only one plant in 800 is common to Australia and Europe." And again: "In Australia, in 1814, the plants of New Holland were reckoned at 3700 flowering species, of which 45, just $\frac{1}{800}$th part, were also Europeans." This should be $\frac{1}{80}$th, or *one plant in* 80.

In p. 148, in the sentence commencing "The white road winding in and out," etc., read without the — after "Llanberis Lake" and "sunlight;" *and for* "melts into the upper lake" *read* "till it reaches the shore of the upper lake."

SCOTTISH BOTANY.

Notes of an Excursion in the Districts of Kinross, Clackmannan, and Fife. By the Rev. Hugh Macmillan, F.B.S.E., etc.

The excursions of which I intend giving a short account in the following pages were not originally planned for the investigation of the plants of these districts, and hence I hope to be pardoned by the reader if I introduce the descriptive element into it oftener than is usually done in the Papers which appear in this magazine.

The topographical features of the districts are remarkably beautiful and diversified. The hills rise in easy undulations, or swell into those round, conical tops, so characteristic of the Old Red Sandstone or Devonian system, which exhibit the most pleasing and varied effects of light and shade on their surface; and in the plains, where the strata lie flat, the scenery is very rich and well wooded, the fields being fertile and covered with the finest loam; hence, of the English type, or the southern species of plants, there is comparatively a large number to be found in the districts. As some of the summits of the Ochil range exceed 2000 feet in height, they produce a somewhat alpine vegetation, indicated by the presence of such plants as *Galium boreale*, *Saxifraga aizoides*, *Epilobium alsinifolium*, *Saxifraga stellaris* and *hypnoides*, and *Juncus triglumis*, which are found in abundance on the lower slope of the lofty Grampian Hills beyond, and some of which seem here to have attained their southern limits in Scotland. Of Watson's Highland type, there are numerous representatives in the district, such as *Galium pusillum*, *β laxius* of Koch, *Trientalis europæus*, *Polygonum viviparum*, *Epilobium angustifolium*, *Rubus saxatilis*, *Listera cordata*, *Sedum villosum*, *Circæa alpina*, *Carex pilulifera*, *C. pallescens*, *C. fulva*, and *C. binervis*, *Habenaria viridis*, *Trollius europæus*, *Pyrola secunda*, *Parnassia palustris*, *Cnicus heterophyllus*, *Hymenophyllum Wilsoni*, *Asplenium viride*, *Eleocharis multicaulis*, *Poa montana*, *Allosorus crispus*, *Viola lutea*, etc., which are found, sometimes in abundance, in the upland woods, and on the moors and hills. With these introductory remarks, I shall now commence to give a detailed account of my excursions in the districts I have thus broadly described.

About the beginning of July a picnic to Castle Campbell was proposed by the friends with whom I was residing at the time. On the appointed day, the party, which consisted of several ladies, three of the neighbouring proprietors, and myself, set out from Hillside, about six miles from the scene of action, in two dog-carts, which held us all comfortably, carrying with us all the accessories of picnicking, and determined to throw aside for a time the cares and conventionalities of life, and yield ourselves up to the influences of nature. The day was very hot,—in fact, one of those Indian days, in which one seems to breathe the glowing sunshine, and feel it warm in the lungs and heart, in which the poets are the only *practical* people, because the world is full of poetry,—when thought is arduous and exertion fatiguing, and there is a pleasant hiatus in actual life which allows the imagination and the feelings their full, uninterrupted sway. Notwithstanding the intense heat however, we enjoyed our drive exceedingly, so beautiful was the aspect of the country through which we passed, decked in all the rich green luxuriance of July, and with its separate features so blended by the quivering sunshine, that it seemed a voluptuous reverie of nature. The mossy walls by the wayside were luxuriantly fringed with large clusters of Lady-Fern and the delicate green tufts of the *Polypodium Dryopteris* and *Phegopteris*, while recesses of the woods bristled with the graceful plumes of the *Equisetum sylvaticum* and *umbrosum*, which, at a little distance, looked like waves of green light, agitated by a breeze. In these woods we discovered the very rare and beautiful Moss, *Hypnum Crista-castrensis*, and the still rarer Lichen, *Cetraria sepincola;* while the interesting little *Malaxis paludosa* grew sparingly in the bogs on the hill immediately behind, which was perfumed with the honey-scented blossoms of the *Gymnadenia conopsea*, and adorned with the stately golden crowns of *Trollius europæus.* We observed the rarer *Rumex alpinus* in several places by the roadsides and on the edges of fields. As it is grown in many of the cottage gardens in the district instead of Rhubarb, it may have escaped from them to these localities, although it is found in several spots in the neighbourhood, far removed from human habitations or from any place where it is likely to have been formerly cultivated. On the heathy moor which lies between Powmill and Hillside occurs also the very rare *Tragopogon porrifolius*, conspicuous by its great height and large purple flowers, which close before noon, or during dull, rainy weather. It grows in marshy places, beside the *Comarum palustre,* with which the moor is covered. Like the *Rumex alpinus,* this plant is also cultivated for culinary purposes in the cottage gardens by the wayside; all the inhabitants assert that they obtained all their roots originally from the moor, so that it is not an escape from cultivation. We found the *Reseda Luteola* very abundantly here and there among the fields near the Rumbling Bridge, over which we passed and obtained a hurried glimpse of the terrific spectacle below.

When we arrived at Dollar, we left our vehicles at the inn, and went up the hill immediately to the woods around Castle Campbell, where we proposed to spend the day. We found the cool shadows of the trees very refreshing after having toiled up the steep ascent under the unmitigated blaze of a vertical sun, and spent several hours very pleasantly in wandering amid their green secrecies and in visiting the magnificent ruins of the old castle, situated on the summit of a green eminence, entirely surrounded by deep ravines, through which flowed two streams called *Law* and *Sorrow,* and commanding an extended and magnificent view of the romantic scenery in the neighbourhood. After dinner, which we discussed with considerable hilarity, under a dense canopy of green leaves, which cast their flickering lights and shadows over our snowy cloth and its adornments, seated on old, mossy stumps of trees, which we had torn up by the roots from the surrounding braes, and charmed with the soft, dreamy music of the stream beneath us, we proceeded to botanize among the woods, and were in a short time rewarded with the discovery of *Equisetum Drummondii,* first found there by Dr. Dewar of Dunfermline, *Circæa alpina, Hookeria lucens, Anomodon curtipendulum, Sticta Pulmonaria,* and various other Cryptogamic plants. Ferns seemed to be unusually abundant, owing to the dense shade and humidity of the ravines. Limited as was the area we examined, we found in it upwards of eighteen species, some of which were very rare and interesting. Following the course of one of the streams out of the wood to the entrance of Glencairn, an upland valley surrounded by huge, round, grassy hills, towering up to a height of about 200 feet, and producing a somewhat alpine vegetation, I was delighted to find the lovely little *Hymenophyllum Wilsoni,* growing in immense patches of the greenest verdure on the bare surface of the moist rocks. The discovery was *accidental* in more senses than one, for I fell headlong over the bank above it, and hurt my back very much. I filled my little vasculum with specimens, without affecting in the least degree the luxuriance of the patches; and I did this with less compunction as my motive was not a selfish one, and I knew that it was to be found in various other stations in the neighbourhood. A short distance from this place, in the very heart of the wood, where the stream forms a very beautiful and romantic cascade, quite hidden by trees and rocks, and revealing itself only to the prying lover of nature, we discovered the *Scolopendrium vulgare* in considerable abundance. This Fern may be considered unworthy of notice in the south of England, where it is as common as the vulgar Polypody; but in Scotland, where it is very rare, and confined to a few localities, it is always regarded by the fern-collector as an interesting and important acquisition; and certainly we contemplated with delight and admiration its huge tufts of glossy tongue-like fronds, as they waved from the crevices of the black, dripping rocks around us, and defied all our efforts to reach them. We were also particularly struck with the beauty of the *Cystopteris fragilis,* which formed wreaths of the most delicate verdure around the crumbling stones of the crypts and arches below the castle, and attained a very unusual size, although secluded from the light, and apparently but scantily supplied with soil and moisture. Having filled our vasculums with all the interesting plants we could find, and admired all the remarkable scenes in the neighbourhood, we left Dollar, in the evening, for home. We experienced the same intense heat on our return which had rendered us so uncomfortable when we set out in the morning; but we had received so much enjoyment from the various incidents of the day, that we regarded such a trifling circumstance as unworthy of complaint; and even the ladies themselves bore with remarkable equanimity the heightened glow which the too ardent sun had left upon their cheeks.

MUSCOLOGIA HIBERNICA.

Bryum obconicum, *Hornschuch, its discovery in Ireland, and Localities for a few of the rarer Irish Mosses. By* John H. Davies.

During the last two years I have paid considerable attention to this critical species, the result of which has produced a decided conviction of its distinctness from *Bryum capillare.* Although Mr. Wilson tells me that near Bangor, where he found what he considered good *B. obconicum* one season, he met with only *B. capillare* the following, in my own neighbourhood I find that it has retained its distinctive characteristics since I first noticed it in 1854. The leaves are occasionally slightly contorted when dry, but never to that extent which is the case in *B. torquescens* and *capillare.* From these it may readily be distinguished by its laxer habit of growth, its narrower, longer, more symmetrical (pendulous) capsule, which, when fully matured, is of a very dark purple colour, and its operculum of a beautiful bright blood-red. In choice of habitat it appears to prefer shady hedge-banks of a sandy character, and old mortared walls, in which latter situation I had the good fortune to gather it, at Laragh, Wicklow mountains, in July last. I am not aware of its having been previously recorded as an inhabitant of Ireland.

My friend Mr. Carroll, of Cork, and Mr. Moore, of Dublin, have each published in the 'Phytologist' an interesting list of Irish muscological rarities. The following are a few additional localities from the counties Kildare and Wicklow.

Campylopus longipilus, Brid. A curious variety (with female flowers), almost entirely destitute of the bristly points to the leaves; plentiful on a wet rock in Glen Millor, with *Andreæa Rothii,* etc.

Trichostomum flexicaule, B. and S. Rocks at Phoul-a-Fooca waterfall.

Tortula vinealis, Brid., var. *β, flaccida,* Wils. Not unfrequent on hedge-banks in the neighbourhood of Ballitore and Dunlavin, and with fruit at Phoul-a-Fooca, intermixed with *Bryum pallens.*

Tortula revoluta, Schwægr. In fruit on old walls at Tubber, with *Eucalypta streptocarpa.* What may probably be this species occurs on stone walls at Ballitore; but from the absence of fruit it is difficult to speak positively.

Tortula lævipila, Brid. On trees near Dunlavin, etc.

Racomitrium protensum, Braun. On a wet rock with *Campylopus longipilus* in Glen Millor; barren.

Orthotrichum Lyellii, Hook. Plentiful on some Ash-trees behind Fuller's Court, Ballitore, and not unfrequent about Inchacquire and the neighbourhood.—This, I believe, is the first notice of its occurrence in Ireland.

Orthotrichum pulchellum, Smith. With the next species, on willows, banks of the Griese, below Ballitore.

Orthotrichum phyllanthum, B. and S. Very common on trees at Ballitore, where it appears to have been overlooked as a variety of *O. crispum*, and probably not unfrequent in other localities in county Kildare.

Fissidens osmundoides, Hedw. Rocks at Phoul-a-Fooca waterfall.

Hypnum purum, Lin. With old capsules; on the roadside near Baltinglass.

Hypnum ochraceum, Turner. In the stream near Rathdangan.

Fontinalis squamosa, Lin. In fruit in the Glen Millor stream, and common in a barren state amongst the Wicklow hills.

BOTANICAL SKETCHES.

Account of an Excursion to Lulworth from Weymouth.

By HENRY GROVES.

Many people imagine Botany to be a dreary science, made up of hard words, and embracing still harder theories; but we shall endeavour to show that, at least in one of its branches, that of field operations, it is both interesting and instructive. With this view, we have arranged a few notes, taken on one of the many delightful excursions within reach of Weymouth, and have selected a ramble by the shore to Lulworth, a pretty village situate on a cove, about nine miles from Weymouth, as one of the most attractive, both as regards its Flora and the variety of its local beauty. For this excursion we selected Wednesday, as on that day a steamer makes several trips across the bay to the cove, where we intended to embark for Weymouth by the last boat. Under the idea of having a "good long day," we resolved to start early, and accordingly sallied from our domicile when the grey streak of morning was giving way to the splendid rays of the sun, that rose so ruddy from a bank of clouds which were just disappearing beneath the horizon. A few sparrows, early birds like ourselves, were promenading the deserted road, intent on picking up a scanty breakfast; whilst only here and there a smoking chimney showed signs of returning animation. Before proceeding further however, we will give some idea of the country through which we were to pass; this requires no lengthy description, it being for the most part hill and dale, except where Lodmoor and the Preston beach present a dreary level, intersected by dykes and sluices. We will now proceed with the Flora.

The first plant we observed worthy of notice was a specimen of *Atriplex rosea,* growing by a wall on Greenhill, while, further on, *Helminthia echioides* occurred in great abundance. The propinquity of *Melilotus officinalis* soon became apparent, from the fragrance of its fading flowers, which give a perfume similar to the *Asperula odorata* and Tonka-bean, due, in all probability, to the presence of cumarin, an alkaloid obtainable from these sources. On passing the first sluice, we observed the *Aster Tripolium,* a pretty seaside gem, often found raising its capitulum of yellow disc and lilac rays from the masses of *Zostera* and wrack thrown upon the shore by the waves. In the marsh on the left, *Ruppia maritima* may be found, while *Silene maritima* is common throughout the whole length of the beach; nor must we forget the elegant flowers and scarlet berries of the *Dulcamara,* growing so plentifully by the roadside. "Years ago" this beach was the habitat of the *Vicia lævigata,* its only known station being on the beaches near Weymouth; it has, however, long since disappeared. A small patch of *V. lutea* still exists, straggling amongst the loose stones which once boasted of its rarer relative. On our left, near the toll-gate, we found *Salsola maritima* and *Salicornia herbacea,* which latter is reputed to have been eaten by our cockney brethren as Samphire,—a substitute to which, we should say, they would have considerable dislike. Notwithstanding a strict search, we were unable to discover any specimens of *Silene anglica,* which used to grow sparingly near here. Thrift (*Armeria maritima*) however is very plentiful at this part; indeed it is generally distributed over the whole of Lodmoor, on the dyke-banks of which may be found some few plants of *Triglochin maritimum,* or Sea Arrow-grass. *Zannichellia palustris* and *Scirpus maritimus*, with *Callitriche platycarpa*, abound in the lake towards the Coast-guard Station, and a little further on we noticed *Epilobium hirsutum* and *montanum*, together with the ladies' favourite, Forget-me-not. By the path leading up the hill, Hound's-tongue occurs, and on gaining the summit a few plants of *Linum angustifolium*. The Thistles in this locality present a remarkable appearance, on account of the abnormal condition of both flower and leaf buds, induced no doubt by some species of *Cynips*, the larvæ of which, on cutting a section, may be seen comfortably housed in the interior. Perhaps the most interesting fact is, that these insects only attack one species of Thistle, that of *Cnicus arvensis*, although *C. lanceolatus* and *Carlina vulgaris* abound in the immediate vicinity. In descending the hill we gain a view of the Preston meadows, through which winds a stream, having its source in the hills about three miles distant. A walk on its banks would disclose an abundance of Water Chickweed, Comfrey, and Reed, together with a few specimens of *Geranium columbinum*, *Hypericum tetragonum*, and *Sparganium ramosum*.

We now cross the bridge, and recommence our ascent until we reach a stone structure, erected for the benefit of the Preventive-men in stormy nights;—poor shelter, to be sure, consisting only of two walls placed at right angles. Here we diverge, to search the undercliff; and can we say we are unrewarded, when the bright yellow flowers and glaucous perfoliate leaves of *Chlora perfoliata* meet our view, forming perhaps one of the most attractive plants in the Order of Gentians? But what is this pretty Liliputian at our feet, covering the damp crevices with its tiny leaves, so lowly as to escape ordinary observation? It is the *Anagallis tenella*, or Bog Pimpernel, whose striped, delicate pink flowers and thread-like trailing stem form so decided a contrast with its more sturdy brother, the Shepherd's Weather-glass. Further on, *Samolus Valerandi* occurs, nearly hidden by the masses of *Scirpus maritimus* and *Juncus effusus* that fringe the pool. Here also *J. lamprocarpus* abounds, and we were fortunate enough to discover some specimens of *J. obtusiflorus*; while through the masses of vegetation scores of tadpoles threaded their way, seemingly intent on enjoying themselves whilst undergoing their remarkable changes. Could they but see themselves as we see them, there would be no lack of amusement. *Anthyllis*

Vulneraria and *Prunella vulgaris,* with *Tussilago Farfara,* straggle on the loose side of the cliff, frequently overtopped by a drooping bunch of *Lolium spicatum?* The dry, rocky soil of the undercliff is plentifully sprinkled with *Carlina vulgaris* and *Linum catharticum,* which latter at this place replaces *L. angustifolium.*

Let us now proceed until we approach a structure, designated by courtesy a house. It will be seen to be made from an old boat, that, after having nobly braved the storm at sea, has yet to do good service on shore. It is probable the occupant will be seen trudging up and down near his castle, now and then lifting his glass to scrutinize some distant sail. We will however let him alone, and proceed to examine the swampy ground below. Here luxuriate *Equisetum fluviatile* and two or three species of *Juncus,* together with Stonecrop, *Samolus,* and the Bog Pimpernel. *Triglochin palustre* reaches a great height, nearly overtopping the bushes of *Cnicus palustris* that crowd the ooze. Perhaps the most interesting plants to be found here are some specimens of a viviparous Rush, which, from an examination of their stems, seem to belong to *Juncus lamprocarpus.* Before going further, it may be as well, for the benefit of incipient botanists and all others whom it may concern, to say a few words about viviparous plants. Certain members of the vegetable kingdom, in a freak, instead of bearing fruit and seed in due course, "shirk" the cares of maturing them, and produce *bonâ fide* young plants: this may be especially noticed in the common Onion, together with many Grasses, and with the Rush before us.

Let us now pass on and continue our descent until we reach some firm ground, where, after a slight search, we observe a few specimens of *Neottia spiralis,* one of the smallest of the British Orchids. Here also *Carduus nutans* droops its head, besieged by a score of busy bees, that are waging cruel war on its honeyed dew. On the beach below, *Atriplex patula,* of coarse succulent growth, straggles on the smooth pebbles; and as we pick a specimen, hundreds of jackdaws wheel above, puzzled beyond measure at the notice taken of such a vile weed; however, their noisy chatterings fail to disturb an old raven that sits moodily enough on one of the crags, no doubt despising the black busybodies, his neighbours. The cornfields on the top of the cliff abound in *Filago germanica* and *Linaria spuria,* together with some few plants of *Æthusa Cynapium.* Further on a singular circumstance is presented by the occurrence of the Horned Poppy, in great abundance on the schistous side of the cliff, thriving capitally, notwithstanding the elevated situation. Having descended to the shore by a crevice, our scansorial propensities induced us to climb the cliff-side, in the hope of adding another stranger to our queer Flora in the botany-box, and we were rewarded by a specimen of Bird's-foot Trefoil, the scientific name of which, *Ornithopus perpusillus,* may be quoted as one of the many triumphs of botanical nomenclature. Wild Celery abounds, together with the Willow-herb, in all the damp crevices formed by the rain and drainage of the fields above. Little novelty is to be seen, except perhaps the abundance of *Linum angustifolium,* until we approach Whitenothe Cliffs, which one can but admire as noble specimens of the white cliffs of Albion.

The vast extent of undercliff here requires no small amount of exertion and considerable agility to surmount its many obstacles. Ample proof of the abundance of rabbits is given by the scanty vegetation being entirely destroyed in some places by their exertions. On the least alarm, they scamper away and dash up the perpendicular side of the cliff, where, crowding on the rock, they quietly watch your puny efforts, either by stone or voice, to dislodge them from their fastnesses. We have no doubt however that the peregrine [falcon ?], sailing along so majestically above, is apt sometimes to steal a member of their community. The first part of the cliff is decidedly unpromising: nothing but thickets of Blackberry-bushes is to be seen; we will however clothe them with the name of *Rubus fruticosus,* and thus render them more acceptable to our formally scientific botanist. Proceeding a little further, the dark green of the *Iris fœtidissima* allured us up a rocky incline, where we were pleased to find some splendid specimens of *Reseda Luteola,* or Dyer's Weld, attaining the height of four or five feet. Thickets of *Ligustrum vulgare* now occur, and we think it to be one of the really native stations of this plant, perhaps the only one in Dorset. If Privet be so abundant, Elder (*S. nigra*) is not less so, as it may be seen clinging to the chalky sides of the cliff throughout their whole length, and apparently getting a pretty good living from the poor soil. "Heaps" of *Samolus Valerandi* clothe every damp place, where also are scattered *Senecio Jacobæa* and *aquaticus.* *Euphorbia portlandica* occurs sparingly, but still more so *Euphorbia amygdaloides;* while *Verbascum Thapsus* and *Hyoscyamus niger* may be observed here and there attaining a great height. *Teucrium Scorodonia* is quite a feature of the place, almost rivalling in abundance the *Glechoma hederacea* we tread on at every step. *Sedum acre* also struggles for existence, now capping some huge rock, now straggling at its base, or carpeting the plain ground. Hound's-tongue and Bugloss are to be found here and there, but are not so plentiful as the Hart's-tongue, whose fronds peep up from between the rocks in great abundance. We also noticed two or three specimens of *Papaver somniferum,* as well as some bushes of *Viburnum Lantana* and *Lithospermum officinale.*

The abrupt face of the cliff obliges us to consider about an ascent, and a glance upwards convinces us that it would be advisable to rest awhile and dive into the mysteries of a certain packet of sandwiches; and we were scarcely seated when we detected ourselves engaged in a search for the "pocket-pistol," deposited in one of the crevices of our outward garment. The process of feeding having been satisfactorily concluded, we still rested awhile on the grass, and watched the steamer on her return trip to Weymouth, until her dimension dissolved in the distance, and the faint notes of the band on board no longer delighted our eager ear. We then arose, and, after adjusting the strap of our botany-box, commenced the ascent. The ground, although steep, looked fair enough at first; but oh, fair illusion! we had only proceeded a little way when a firm footing seemed out of the question, and, despite the rapid revolution of our paddles, we made but sorry progress. Rock after rock, stone after stone gave way, clattering down the steep side of the cliff until they crashed on the shore beneath. It will be satisfactory to our friends to know that eventually we did reach the top, and felt considerably refreshed on learning that a road was in progress of construction; so that future explorers will have the satisfaction of saving a great deal of labour, and no small amount of wear and tear. Here, almost on the edge of the cliff, is perched the Coast-guard Station, and after a friendly chat with one of the men, and a bumper of invigorating fluid, we start on our way to Lulworth. The path for about a mile is rather uninteresting, being only here and there enlivened by the Harebell, that raises its campanula from the coarse grass, in spite of a brisk but welcome breeze. "Durdle door," an archway of rock, now opens on view, and a nearer inspection discloses an abundance of *Crithmum maritimum* clothing its sides. Our path is now sprinkled with the lesser Bugloss, especially on those parts where the nimble rabbits have turned up the soil in their excavations. We are now in the Warrens, where sportsmen may have as much fun as they like for the moderate charge of sixpence per shot. Hundreds of rabbits are forwarded to London every week by the tenant, who rents these lands on a very peculiar lease, being entitled to every wild animal, from a fox to a mole, which latter is especially mentioned. After the uninteresting mile, which, by the bye, we considered an exceedingly long one, our spirits were greatly refreshed by the sight of a good bed of *Statice spatulata*, of very fine growth, bedecking the chalky side of the cliff. Such abundance reminded us of inland friends, and accordingly we stowed away several specimens.

At this time a never-failing internal monitor suggested to us a glance at the watch-dial, and we made the best of our way to Lulworth, now near at hand. *Hyoscyamus*, *Malva rotundifolia*, and *Reseda Luteola* are to be found here, together with many other plants mentioned before; and we regretted exceedingly that time would not permit a search on the other side of the cove, where, according to report, we might have added *Brassica oleracea* and *Atropa Belladonna* to our somewhat lengthy list. But some business of an ornithological nature compelled us to relinquish the idea, and, with half an hour to spare before the arrival of the boat, we found ourselves seated in the Cove Inn, busily engaged in furnishing the inner man. Finally, bidding adieu to the straggling village, we repaired to the shore. The 'Prince' steam-yacht was now seen entering the rocky gates of the cove. The plank thrown out, we speedily embarked; and, emerging from the landlocked harbour, the lively strains of the band, and the gaily-decked steamer, were alike soon out of hearing and sight of friends ashore.

CHEDDAR PLANTS.

By JOHN LLOYD.

Having a wish to attempt the cultivation of some of the smaller and rarer Ferns in open borders, I decided upon taking a trip to the romantic cliffs of Cheddar, both to observe the circumstances under which *Polypodium calcareum* grows there in such profusion, and to procure some plants, as well as to ascertain whether *Dianthus cæsius* was or was not exterminated in this its only well-authenticated locality.

I started from Paddington station on Monday, the 22nd of June, by the 6.45 A.M. train, and saw nothing worth relating, except that the Ferns were then making their appearance in the rocky cuttings in the neighbourhood of Bath and Bristol.

I left the train at Yatton station, as I wished to explore a romantic dell called Brockley Combe, where I was informed that a large quantity of Ferns grew, and which was about three miles from Yatton.

In walking through this beautiful village I was struck with the superiority of growth and colour of the plants growing in the gardens, compared with the same species growing in the environs of London.

Upon the sides of the low stone walls (which is there the general fence to gardens and homesteads) grew *Ceterach officinarum* in abundance; its sober brown contrasting beautifully with the more delicate greens of *Scolopendrium vulgare, Asplenium Ruta-muraria,* and *Asplenium Trichomanes;* there was here and there a plant of *Sedum acre,* looking like a patch of gold; *Cotyledon Umbilicus* was there in several places, as was *Parietaria officinalis,* but the very common *Asplenium Adiantum-nigrum* appeared to be entirely wanting. The tops of the walls were furnished with a profusion of *Valeriana rubra, Antirrhinum majus* of various colours, *Chrysanthemum Leucanthemum, Veronica Chamædrys,* and several other plants of a less showy description. What I have related is not confined to Yatton, but is a specimen of the Flora of other villages through which I passed. When I got through the village I observed that the most common Fern upon the hedge-banks was *Scolopendrium vulgare.* I saw a few plants of *Polystichum angulare,* but I did not see a single plant of any species of *Lastrea* all that afternoon.

When I got to Brockley the evening was far advancing, and I thought that my first care should be to secure a bed at the village inn, but I could not get accommodation; so not choosing to explore the valley and rough it for the night, I walked on to the village of Backwell. At four o'clock next morning I began to retrace my ground, and had not gone above a mile before I discovered a very curious variety of *Scolopendrium vulgare*. The fronds are about four inches long, doubly furcate and truncate, with the sides jagged. I examined the withered fronds of the previous year, and, finding that its characters were constant, I extracted it from the wall and placed it in my tin box.

Further on I turned on my left hand into a wild, common-like piece of land, with rocks upon it. This blind road I expected would lead me towards the upper part of Brockley Combe, and though it led me wide of the mark, it recompensed me by my discovering *Ceterach officinarum* and *Asplenium Ruta-muraria* growing upon the wild rock. I had never before seen them growing except upon the works of man. I now got into a wild neighbourhood, and had passed Brockley Combe a mile and a half before I came to a house. The first that I came to had a great quantity of *Cystopteris fragilis* growing upon the garden-wall. Here I was told that although I had missed the place I wanted to find, I was still upon the right track for Cheddar; and not wishing to walk my ground three times over, I did not go back again.

About a mile before I got to the next village, which is called Wrington, I came upon a quantity of *Helianthemum vulgare,* many patches of which had orange-coloured blossoms instead of yellow.

When I arrived at the village, upon a low wall which separated the garden of a very genteel house from the road, I observed a great quantity of *Dianthus cæsius;* indeed the top was completely covered with it. It was in full bloom, and was a very beautiful object; it had evidently been sown there. A little past the village, on the road to Churchill, and on the right-hand, I observed a *Ranunculus ?*, and further on, on the left hand, on a low wall, was *Sedum dasyphyllum,* and still further, on the same side of the road, was an old brick wall, with a profusion of *Cystopteris fragilis* growing near to the top of it. Near to the turnpike, where a stream runs under the road, I observed a bank with a great quantity of *Lastrea Filix-mas* growing upon it, and this was the only spot upon which I observed this very common Fern.

I now came upon the range of the Mendip Hills, and although they are not to be called mountains, they are very beautiful and, with their limestone cliffs, very romantic. Here the hill has been cut, to ease the road, and the cutting exposes a good portion of the rock. As I approached the end of the rock, the stratification lay at an angle of about 45°. Towards the middle it is perpendicular, and towards the further end 45° again, but turned the contrary way, so that it appears to have a common centre in the earth.

I went through the village of Shipton, and arrived at Cheddar without meeting with anything worth recording. My first care was to procure accommodation for the two following nights, which I did at the King's Arms Inn, and found the accommodation good and the charge moderate. After refreshing myself I strolled towards the cliffs, and, by favour of the proprietor, I ascended through a steep copse towards the top. I went out upon a piece of open land, where there was a most beautiful bird's-eye view of the upper part of the village. I was perhaps 200 feet above the level of the valley or glen below. The steep declivity of the opposite hill was cultivated in garden allotments, and looked like a map; whilst in the bottom the primitive white-washed gable-ended houses (some of them nestling close under the cliffs), the towering rocks, with the white smoke of a lime-kiln against them, the rushing of the stream, and the turning of the mills, all contributed to make the scene one of surpassing loveliness. After I had admired this beautiful and picturesque view for some time, I descended towards the village. I found a path with steps, which brought me into the road opposite to the inn or hotel. The gate was open; but, from the manner in which it was shut after I made my egress, I was made to understand that I had been upon trespass, and I understood afterwards that the land upon which I had been belonged to the hotel, and was sacred to tourist customers.

The first thing that attracted my notice was a shut-up cavern in the perpendicular rock, with letters over the door, 'Cox's Stalactite Cavern.' I made some inquiries as to the means of viewing the interior, and was informed that it belonged to the landlord of the hotel (who is also proprietor of the adjacent mill), and that he would not light his candles, even for a single visitor, under three shillings; any number above three are charged one shilling each, so that if my information is correct, and I do not doubt that it is, the miller-host of the hotel grinds tourists as well as corn.

A few yards further on I came to a large stream of water coming out at the bottom of the cliff; but, instead of its being clear, as we should naturally expect to find it from such a source, it was quite turbid. Upon my inquiring the reason, I was informed that there were lead-mines in the hill, and since the commencement of their working, the water has been discoloured and the fish killed.

A small distance further on I came to the bevy of ancient dames who gave the Rev. W. Bree so much annoyance with their importunities. Their appearance was quite in keeping with the other objects around me. With a little help of the imagination, they might have been taken for the weird sisters of the cliffs. They were quite civil, and procured me an assistant for the following day. Finding that I did not want to purchase Cheddar plants, one of them informed me that she had got a very curious herb which grew upon Wells cathedral, which when I saw I recognized as *Saxifraga ceratophylla;* so I left the old dame to sell her "Cathedrial Moss" (as she called it) to another customer.

I rose at an early hour on the following morning; the tops of the cliffs were gilt by the sun, whilst the lower parts were in the shade. The effect was beautiful, but I think not quite so fine as is their frown when the sun leaves them in the evening. My first care was to secure some plants of *Polypodium calcareum,* which grows in abundance on both sides of the glen; if I were to say that there are three acres of it, I am confident that I should not exaggerate. It grows in large irregular patches amongst loose stones, with so scanty a supply of soil, that in many places I could find little else but its own roots and creeping rhizomes. Here it is quite exposed to the influence of the sun and the wind, and does not appear to suffer much from either; but at the same time I observed that it grew most luxuriantly where it had the partial shade of a large stone. I inquired from my guide as to *P. Phegopteris* and *P. Dryopteris,* and was informed that there was a Fern growing in another place, which some gentlemen said was a different one, but upon my being shown the spot I found that it was *P. calcareum,* growing in a more sheltered situation, where, as a matter of course, it was of a deeper green.

When I had procured a sufficient quantity of plants, I turned my attention towards the general botany of the place, and first to the botanical lion of the cliffs, *Dianthus cæsius*. I am happy to say that it is not eradicated, and that it is still there in no inconsiderable quantity. It grows plentifully in the inaccessible parts of the cliffs, where it is impossible to get at it except by being let down by a rope from the top; and whilst it seeds in that situation and the seeds vegetate below, there is not much danger of its being exterminated. I came upon perhaps twenty plants which might have been got with the greatest ease, but I contented myself with two. Upon my inquiring the reason of its being less plentiful than formerly, my guide informed me that the boys look for it, and when they find a plant they gather the flowers and place a stone before it to make it less conspicuous from below, and then they offer to show it to tourists for the sake of a trifling reward. I am afraid that *Meconopsis cambrica* will be extinct in a few years, as I saw but little of it, and it does not, as far as I could see, entrench itself where it cannot be dislodged. I think that I may assert that I saw every rare plant which is recorded as growing at Cheddar in the Rev. T. F. Ravenshaw's list in the 'Phytologist' for June last (1857), and in addition *Polystichum aculeatum*, *Sedum rupestre*, *Saxifraga hypnoides*, *Linum catharticum*, and the pretty little *Teesdalia nudicaulis* in seed. The *Polystichum* was growing in an exposed situation, and was of a yellow but healthy colour, and had fronds 20 inches long. *Cystopteris fragilis* was growing amongst the stones, *Asplenium Ruta-muraria* and *Ceterach officinarum* out of the clefts of the rocks, but sparingly, whilst *Asplenium Trichomanes* was in both positions in abundance. *Polypodium vulgare* was growing upon the rocks, but its small triangular fronds showed that it was not at all at home, and that it preferred the rough bark of a tree to the smooth face of a limestone cliff. The situation in which I met with *Sedum rupestre* and *Saxifraga hypnoides* I should think was not the place where they originally grew; they probably grew near to the summit of the cliff, were dislodged by accident, and washed down. I saw many seedling Yews, but the bottoms of the cliffs are never likely to be clothed with evergreen by their means, as they are sold to tourists to take away as mementos.

The inaccessible parts of the highest rocks are inhabited by jackdaws, ravens, and several species of hawk, whose cackling, croaking, and screaming give an additional wildness to the scene. Dreadful accidents are by no means uncommon. The mother of my guide recollects eight persons losing their lives by falling from the tops or sides of the cliffs: they were principally boys, who came a bird-nesting. Having made what discoveries and having gleaned all the information which I could, and it being near night, I returned to the inn.

At four o'clock next morning I started on my road to Bristol, intending to walk on till a passenger-van which leaves Cheddar at six overtook me. I remarked that the Ferns which I saw growing so plentifully in all other places, were scarce all along this road. It is the high-road from North Devon to Bristol, and I suppose that the fern-collectors on their return have grubbed them all up. I saw *Colchicum officinale* in several pastures; it is not at all an uncommon plant here. Upon a dry bank I came upon a patch of *Sedum rupestre;* but what I at present take to be my best discovery is a *Sedum* which I cannot find described by British botanists: I withhold particulars until next month, as I should wish to be certain that the plant is new to the British Flora, and also that it is the species for which I take it, before I claim the merit of being the first to discover a plant growing wild in England which has hitherto been considered as a Continental species. I am now testing whether it retains its characters under cultivation, and am growing it side by side with *Sedum reflexum,* which is the only British species with which it can be confounded.

ANEMONE PULSATILLA, ETC.

By J. B.

I had no intention of arriving at any *permanent conclusions* or building up any extraordinary and improbable theory, when I asked for some information respecting the distribution of *Anemone Pulsatilla* and *Astragalus hypoglottis* in the July number of the 'Phytologist.' It was intended merely as a hint for further inquiry and research. I had been struck by the absence of the former plant from the chalk downs of Sussex and Kent,—two counties in which I believe it has never yet been discovered,—and at its comparative abundance all along the line of the lower chalk, from Wiltshire through the midland counties, extending in a north-east direction as far as Norfolk. I acknowledge I was in error in inferring therefrom the probability of the plant in question not being found *off the lower chalk,* inasmuch as the stations assigned for it in Gloucestershire and Yorkshire are far removed from any chalk hills whatever, and admit that it should rather be characterized as a "lime-loving species" than as restricted to any one formation; still it is a significant fact, that of all the counties in which it occurs, but two have this lower chalk formation running through them, and that in these two exceptions we have still calcareous soil; how is it, then, that the upper chalk, which constitutes the wide area of the North and South Downs, does not produce a plant so partial to calcareous soil? And does it not, after all, depend upon some chemical, or I should rather say mineralogical, quality in the last-named strata, which is adverse to its growth?

I am by no means certain that the *Anemone* has not been found on the upper chalk, as well as the lower, in some of the midland counties; and it is this very point to which I wished to direct the attention of those readers of the 'Phytologist' who have the opportunity of making personal observations, for it is only by such means that we can hope to arrive at correct data on which to build a theory of so comprehensive a nature. To those who do not trouble themselves much about the difference between upper and lower chalk, it may perhaps be worth while observing that the main point of difference consists in the absence of flints in the latter, and in its more unctuous, almost argillaceous character;—at the point of union, it is true, they almost imperceptibly pass into each other; but any farmer of common intelligence will be able to tell at once the difference between the two, and which makes the best lime. After all, whether it turns out that the *Anemone* is indued with such fastidious tastes as to be so singularly particular in selecting its habitation, or otherwise, the inquiry is not devoid of interest, and may lead to other observations which will throw further light on the laws which seem to regulate the distribution of plants.

The *Astragalus* I am not now prepared to claim as belonging to any particular formation: there is abundant evidence to prove that such is not the case.

Reviews.

Irvine's British Plants. T. Nelson and Sons, Paternoster Row.

As a reader of the 'Phytologist,' I wish to notice this book, which, although called an Introduction to the Science of Botany, will (judging from the first part, just published) be, when completed, a most useful work on botany. Such a book is much wanted; and every person who desires to become acquainted with this delightful, interesting, and useful science should possess it.

The author has determined to place it within the reach of *the million*, as he has already given 150 pages of letter-press, with numerous illustrations, well and correctly executed, for 1*s.* 6*d.* A few years ago such a volume would have been eagerly purchased at four times this price; and I may ask, who would remain ignorant when so much knowledge can be obtained so easily?

The work commences, as a book of science should commence, with a proper description of the subject, and correct illustrations of the several parts of plants, so that every reader can readily understand what the author means, and he will, on seeing a living plant, be able to recognize it. This is a great advantage, as many books leave the student in the dark on subjects which the writer failed to describe correctly or intelligibly; but as the author is a practical botanist, and well acquainted with his subject, he can describe to others what he knows himself.

The first part is divided into sections,—Structural Botany, Physiological, Systematic, Economical, and Geographical. There is also a chapter on the periods of flowering of plants, duration of plants, and proper time of collecting, both for examination and the herbarium, which will be found particularly useful to students. The science is treated on the Natural System, which has now quite superseded the old system of Linnæus.

I hope the perusal of this work will add many to the society of botanists, and that each may find what advantage he has over students of many other sciences; and that as he moves across the great field of vegetable creation he will find health and recreation, and be more fitted for the active duties of business and the intercourse of society.

Allow me to say a word upon the advantages to be gained by artists in the study of botany. At present we find in most of their paintings incorrect representations of plants; but we may hope for correction if they will only read Mr. Irvine's book.

There was a notice in the 'Phytologist' of a great mistake respecting Mr. Ruskin's favourite flower in a Pre-Raphaelite painting, and I should like to see our modern painters show us that they know how to represent a plant according to nature, and not place the flower of one plant on the stalk of another. It is not agreeable to see the flowers of the Foxglove (*Digitalis purpurea*) placed on a stalk of the *Alisma Plantago* (Water-Plantain).

S. B.

Cultivated Ferns; or, a Catalogue of Exotic and Indigenous Ferns cultivated in British Gardens, with Characters of the Genera, Principal Synonyms, etc. By John Smith, A.L.S., etc. etc., and Curator of the Royal Botanic Gardens of Kew. London: William Pamplin. 1857.

The literature of Ferns has just received an important addition by the publication of the above-named work. The hard-earned and widely-extended reputation of its author is an ample guarantee for its excellence. The number of genera described in this scientific Catalogue is 124, and the number of species is probably somewhere about 800; and all these are cultivated or have been cultivated in British gardens.

The author's object in drawing up this Catalogue we will take the liberty of stating in his own words, viz.:—"Ferns having of late years, by their elegance and beauty, become great favourites in our gardens and conservatories, numerous works calculated to facilitate their study have issued from the press, and advertisements of new ones constantly meet our eye. Gratifying as this fact undoubtedly is, as proving the popular interest the subject has acquired, it has however been attended with the great disadvantage of having led to a maze of conflicting views and an almost endless mass of synonyms; for as the leading authors differ in their systems of classification and nomenclature, few Ferns possess less than two names, many have more, some even exceeding twenty. Such being the case, amateurs and cultivators complain—and surely with good reason—of the difficulty experienced in obtaining correct names for their collections. To assist in remedying this complaint, I have been induced to draw up a Catalogue of Ferns cultivated in the Royal Botanic Gardens at Kew," etc. As this Catalogue is obtainable at the lowest possible price, we think it better to recommend our readers to purchase it than to give a detailed account of its contents. We have heard the gratifying fact that it has a brisk sale, and this is one of the very best *criteria* of the merits and utility of the book. The lovers of Ferns, and they are numerous and daily increasing, may, with propriety be congratulated on the extent, variety, and excellence of the literature specially devoted to the objects of their study and admiration. A. I.

The London Catalogue of British Plants. Published under the direction of the Botanical Society of London. Fifth edition. William Pamplin. 1857.

We have much pleasure in announcing this most useful publication, the fifth edition of which is now offered to British botanists. This is a gratifying fact, a proof that the small though select botanical public of England avail themselves of a cheap Catalogue of Native British Plants, a work which we believe no nation in Europe but England enjoys. There is another fact, in addition to this being the fifth edition, connected with this new issue of a most useful list, viz. that its price is now reduced from sixpence to fourpence. We remember the first appearance of the catalogue of the Edinburgh Botanical Society, which was hailed by all botanists throughout the land as a *boon.* This catalogue, we believe, cost a shilling. The London Botanical Society,—which we are happy to say, and we have the authority of the authors of this fifth edition for saying it, is not defunct, but in abeyance, shortly to be reconstituted, and to be rendered more efficient than ever,—followed in the wake of its elder northern rival in this good work, viz. it published a catalogue which has long been the text-book and is well known to all British botanists. We believe the price of the first edition was a shilling; the price subsequently was reduced to sixpence; and it is now fourpence. Three copies can now be had for the price of two in former times. The difference between this and former editions is not very remarkable. It is still limited to sixteen octavo pages, and the original numbers are retained. This is a valuable distinctive peculiarity of the London Catalogue. The chief novelties are the following:—*Ranunculus Baudotii* is introduced, *vice R. confusus,* now a variety of the above. We have now got a *Thalictrum minus,* var. *pubescens. Draba verna* has received a second ally called *D. verna, c, brachycarpa. Arabis ciliata* is now attended by *A. b, hispida. Viola Curtisii* has also changed her state, and is now united with *V. lutea. Sagina maritima* and *S. apetala* have been respectively mated with *S. densa* and *S. debilis. Rubus* appears to have received a slight diminution in the species, and a slight increase in the varieties. There is a new comer in *Onagraceæ,* viz. *Epilobium rosmarinifolium;* in the same Order are also two varieties recently introduced. *Saxifraga hypnoides* has lost several joints from her tail, but it is still formidable enough. The *Umbellifers* are very constant quantities, and the *Compositæ* are very fluctuating. *Hieracium* has attained the respectable number of thirty-three. There was a time in our remembrance when this genus only mustered five species. This is an age of progress. Among the *Salices, S. Helix* has been degraded, and her place is now vacant. No. 1005* is, like the Society under whose auspices this Catalogue is published, in abeyance. The name *Epipactis ovalis,* Bab., has been superseded by *E. atrorubens,* Reich. The *Potamogetons* have received a considerable accession: they are now twenty-two. They were nineteen, with three varieties, in the fourth edition. It is a subject of congratulation among the more ancient of British botanists to see *Hierochloe borealis,* like that ancient Celt, Divitiacus, restored again to a place of dignity and honour. The species of the Order *Characeæ* are now added for the first time. This is a summary of the material differences between this fifth and the preceding fourth edition. In the first list of exclusive species, *Pæonia corallina* has been introduced to lead the band of interlopers, marked A. This change has made a vacancy in No. 35, and *Berberis vulgaris* has very appropriately been promoted to the vacant place. It may be presumed that *Reseda Phyteuma* is a recent importation, a new production of the ballast-heap. *Hypericum anglicum* has moved into List B, working his way slowly upwards. *Centaurea paniculata* is another candidate for admission; so is *Veronica peregrina. Viola stricta* is now one of the *species defunctæ:* it had a short existence in England. *Vella annua* was not extinct three years ago; it is like several other stragglers—very uncertain; so is *Lythrum hyssopifolium*, with which *Vella annua* appeared. *Silene annulata* is an addition to List B, which is diminished by the elevation of a baker's dozen of *Hieracia*, now admitted to all the honours of native British subjects of the Floral Queen. *Thalictrum majus*, Jacq., is now one of the "extinct or erroneously-recorded plants;" so is *Arum italicum*, Mill. "*Trifolium orchroleucum*," and "*Achemilla conjuncta*" will be noticed by the lynx-eyed inspectors of the Catalogue; they are right in the fourth edition; *Molinieri* is changed into *Molinerii*. In fine, we recommend each of our readers to order a dozen of this new edition and mark their *desideratæ* thereon, and send them to their friends and correspondents. The time for looking at and arranging the acquisitions of the past season has now come. H. B.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Pre-Raphaelite Painters and Flowers.

About four years ago there was a painting exhibited in the Royal Academy, by *Millais*, I think, called 'Ophelia.' It represented Ophelia floating on the water, gaily dressed, looking upwards. The subject was taken from the description of Ophelia in 'Hamlet,' Act iv. Scene 7:—

> "There is a willow grows askant the brook,
> That shows his hoar leaves in the glassy stream;
> Therewith fantastic garlands did she make
> Of crow-flowers, nettles, daisies, and long-purples:
> There, on the pendent boughs her coronet weeds
> Clambering to hang, an envious sliver broke;
> When down her weedy trophies and herself
> Fell in the weeping brook."

The foreground of the picture was filled with flowers, *but not the flowers of Shakespeare*; and I do not remember any flowers so prominent as the *Myosotis palustris*, which, by the bye, had nothing to do with the garland. The flower *Long Purples* was, I think, not given, and I question if the painter knew the flower so named by Shakespeare. Crow-flowers and Daisies might have been there, but I do not remember whether the former were *in* or *out* of the water.

Can any of your readers tell me where this painting is, and the names of the flowers painted? I make this inquiry, because, as the Pre-Raphaelite artists profess to paint *from Nature*, we ought to know whether they are truthful. In a future age, when the *Gems of the British School* may be admired for their excellence, it would be unfortunate to find that the flowers represented in these paintings had become *extinct*, or *had never existed.* S. B.

ALISMA PLANTAGO AND MR. RUSKIN.

The picture alluded to at page 192 of this volume of the 'Phytologist' (1857) is now in the Manchester Exhibition. I can find no *Alisma* in it; but there is a bed of the arrow-shaped leaves of *Sagittaria*, with a number of white flowers dotted amongst them. The picture is hung rather too high for very minute inspection; but the botanical truth for which the leaves are remarkable, does not, as far as I have been able to judge, extend to the flowers: they look too large in proportion to the leaves, and each one seems to rise from the water on its own solitary stalk. My eyes are not sufficiently sharp to make out their petals, etc., so I cannot tell whether they actually represent the flowers of *Sagittaria* or those of any other plant; but the extraordinary painting of the leaves of the *Sagittaria*, the Water-lilies, and Fuchsias is worthy of all praise for careful elaboration of details. The real merit of such pictures in an artistic point of view is not a subject for discussion here; it may well be left to those who are better able to deal with it, and who have shown no want of zeal in criticizing the peculiarities of Pre-Raphaelite art. R. C. D.

[In offering our grateful thanks to our obliging correspondent, R. C. D., we beg to state explicitly that the 'Phytologist' will not become the vehicle for publishing either favourable or unfavourable remarks on the peculiarities of the so-called Pre-Raphaelite school of art. Our mission is one of a larger and more useful character. The sole journal devoted to the knowledge and progress of British Botany has a higher aim than that of a fault-finder or caviller. One of our objects is to teach the connection between nature and art,—in a plain, straightforward way to show that art might be improved by imitating nature somewhat more closely than some of our most celebrated artists have done. This statement may be illustrated by an example. Only some weeks ago, in a celebrated fashionable town in the south of England, our attention was called by a friend to a production of the potter's art. Our opinion was also asked about its appearance and effect as a work of art. The object itself was a night or bedroom candlestick. The base was ornamented with Ivy leaves, and the same leaves, reduced in size, were employed to ornament the place where the candle or light is placed. The whole was suitable enough for its intended object. The ornamental parts were also pretty enough; but, as Horace teaches in his celebrated epistle to the Pisoes, *his non erat locus*. The botanical truth was falsified or misrepresented. The leaves of the Ivy are never disposed circularly at the base of the stem in an arrangement which botanists call a *rosette*, and the shape of the petals or component parts of the flower used to ornament the top of the article is never like that of the leaves. Our friend was told that the candlestick would have been just as beautiful if the leaves of a plant which assumes a rosette-like disposition at the root or base of the stem had been selected. And, again, if nature had been followed, the glaring incongruity of representing petals as if of the same form as leaves would have been avoided. The monstrous combinations on our common pottery utensils, our room-papers, and our calicoes, are noticed by the most incurious observers. Surely the ornaments put on these fabrics would not be the less effective if they were real representations of natural objects; and if they were so, they would teach something. The artists of such designs are worthy of being classed with the painter noticed by Horace, who painted a man's head on a horse's neck, and his inference is just, *Spectatum admissi, risum teneatis, amici !!!* In charity, it may be supposed that *Alisma Plantago* was a *lapsus calami* for *Sagittaria sagittifolia*, the Water Plantain for the Arrow-head. But the importance of an accurate perception of the forms and arrangement of natural objects to artists of all ranks is so great, that we hope artists, connoisseurs, amateurs, etc., will not lose sight of it; and the 'Phytologist' will readily give publicity to their strictures.]

SPECIES DEFUNCTÆ.

Plants supposed to have disappeared, or which have not recently been observed growing wild in England.

The author of the brief papers bearing the above-named inscription has been over-hasty in enumerating *Sonchus palustris* among England's defunct plants. It was seen (only a single plant) in the Medway, near Aylesford, a few miles above Halling, where it was noticed many years ago, on Friday, the 4th September last, by W. Pamplin and A. Irvine. The former pointed it out to the latter, and stated that he was somewhat incredulous of the statements about its disappearance. That it has existed in the Medway for more than a quarter of a century after its supposed decease is a fact. *Semper floreat!* May it continue to ornament the banks of this lovely stream for ages to come!

SPECIES DEFUNCTÆ.

Sir,—Referring to your inquiries in your last number (p. 216) respecting the so-called defunct plants, *Senecio paludosus*, *Cineraria palustris*, and *Sonchus palustris*, I beg to say that I have gathered them all in their wild habitats in the eastern counties within the last few years; the two former about thirteen years ago, and the last about four. They are rapidly disappearing before drainage; but I believe I could still lay my hand upon wild specimens of each of these rarities; to which I would add a fourth, viz. *Teucrium Scordium*, growing within a hundred miles *or less* of this city. W. MARSHALL.

Ely, Sept. 5, 1857.

DISAPPOINTMENT.

On revisiting, after a lapse of only a few years or even only months, in this railroad-pace improving age, a spot where some favourite plant or botanical rarity had been noticed, one is often doomed to a vexatious kind of disappointment; for instance, the copse and ditch bordering upon a portion of Bagshot Heath, where in former years I had been accustomed to see that noble British Fern *Osmunda regalis* by hundreds, have recently been cleared, drained, and transformed into a wheatfield. R. K.

HYPERICUM ANGLICUM.

I am sorry to be obliged to differ from the opinion of a lady, as expressed in the 'Phytologist,' vol. i. p. 518, but cannot agree that "the idea of *H. anglicum* being a Cornish plant is entirely set at rest." Unfortunately

I do not possess the means of communicating with Mr. T. R. Polwhele, and so cannot learn from him the exact place at Falmouth where he gathered the specimen now before me. That specimen is certainly not *H. hircinum* (which I have also received from Falmouth), differing in its leaves, and especially in its calyx, from that plant.

C. C. BABINGTON.

BRITISH PLANTS OBSERVED AND FIGURED BY PETIVER.

"*Lichen arboreus albescens, segmentis carnigeris subtus aterrimus.* This was sent me from Norway, but I have since observed it about Tunbridge in two or three places.

"Tab. 15. fig. 3. *Byssus aureus Derbiensis humifusus.* This elegant sort of *Moss* my hearty friend Mr. James Ayrey found in the Peak of Derby, in a lane joining to a field where the marvellous stones are, about two miles from Eldenhole, on the way from thence to Buxton Wells.

"Tab. 15. fig. 4. *Fungellus gramineus Northamptoniensis.* Dr. Sloan observed this little Mushroom springing from the leaves of dead grass, about September last, on Shepherd's Hill, near Althorp, the seat of the Earl of Sunderland, in Northamptonshire."

Can any of our readers identify any or all of these plants?

CUMBRIAN LICHEN.

Please tell me what Gilpin* means here:—"These mountains" (Cumberland) "were covered with a profusion of huge stones and detached rocks, among which we found many old people and children from the neighbouring villages, gathering a species of white Lychen, that grows upon the craggs, and which we heard had been found very useful in dying a *murray-colour.*" G.

SUPERSTITIOUS USES OF PLANTS.

(*Pyrus Aucuparia*).

In Westmoreland this tree is called the *Wiggen tree*, and the old people place it on their pillows to charm away evil spirits. It appears that this tree is best known in Scotland by the name of Roan or Rowan tree, but why is it so called? In England it is the Mountain Ash, and was, I believe, the *Sorbus* of the old botanists. If this tree is *found in churchyards*, may not the custom of planting it there be derived from theDruids, as we are told it is usually found growing near the remains of their ancient temples? It would be interesting to know any other names by which this tree is called in England, Scotland, and Wales. S. B.

DISTRIBUTION OF THISTLES.

Professor Balfour, in his 'Phyto-Theology,' states that "the Order of Composites, to which the *Thistle* belongs, is the largest and most generally diffused of all known tribes of plants. Thistles are generally distributed. Many species have been noticed by travellers in Syria and Palestine. Hasselquist, during a short visit to Judæa, observed from eight to ten different species on the road from Jerusalem to Rama, and one on Mount Tabor. Thistles and plants allied to them now cover spots where formerly culture extended. Thus the prediction of Hosea is fulfilled,—'The thorn and the thistle shall come up on their altars.'"

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* Gilpin's 'Tour to the Mountains and Lakes of Cumberland,' etc., vol. ii. p. 39.

The injury which Thistles and plants like them cause to fields is very great, owing to the mode in which the fruit is scattered by the winds.

In reading the above account of Thistles, I was reminded of a paragraph I saw some months since, noticing that an Act of Parliament had been passed in Australia to prevent the spread of Thistles in that country. I think this fact of legislative enactment against this portion of the vegetable kingdom is worth notice in the 'Phytologist.' S. B.

CONVOLVULUS SEPIUM.

I gathered today, in the lane leading to Kemp Hill, some fine flowers of the *Convolvulus sepium*, which were of a pale lilac-colour, with five white stripes; they are rather less in size than the *white*, but much larger than the *C. arvensis*, and grow up the hedge like the former.

Hooker speaks of a *variety of* C. sepium, *white*, *striped with pink:* is this correct? L.

[Some reader of the 'Phytologist' will perhaps be so obliging as to send us an answer to the above. We (W. P. and A. I.) saw a pink *Convolvulus* at Aylesford last week; the colour of the rays was not noticed.]

SORB-TREE OF WYRE FOREST.

Sir,—You wish me to give you some account of the old Sorb of Wyre Forest. It hath outlived its history; how it came there is a matter of conjecture. I have known it for nearly sixty years; it was then much mutilated, the trunk much barked, boughs sawn out of it. I discovered, by removing a brake, that there had been some buildings; a bit of a wall was left, built with mud, and slight traces of a ditch round a small garden in which grows this tree. I made every inquiry of the old woodmen concerning this circumstance, and one old man told me that it was traditionally said by them that this was a stag-keeper's hut. Now this is very probable, for this forest, which is truly a natural one, and was formerly of vast extent, was the property of the Lords Marchers of Wales, but was forfeited to the Crown: the Crown still possesses much of this forest, but not that portion where this tree grows; this belongs to a descendant of a very ancient Norman family, long established here, and this portion is called the Parks. The Normans were very fond of parks, and this being a royal forest, the building before mentioned was probably the residence of a park-keeper from Normandy (this is my conjecture), and he brought this tree, or the seed, and planted it here. I believe it is not indigenous in this country anywhere. There is some mistake in the localities given; probably *P. torminalis* is meant, which merits the name of *domestica* in preference to this, whose fruit is not edible in any state. No fruit whatever is equally astringent and nauseous. Although the fruit used to lie on the ground in abundance, no young plants ever sprang up, nor is there another tree in the whole forest. Innumerable have been the trials by every means to propagate it, by gardeners, nurserymen, and others, without success, except in one or two instances in which it succeeded by seed. Nurserymen call it "a mule," or hybrid; but it is a distinct species, a native of Normandy. As to its age, it is a difficult question in growing trees, which depends on various circumstances; I should consider it nearer five hundred years rather than two; it is a slow-growing tree, and would live to a very great age were it left to grow unmolested. This tree would have been at this time in a very flourishing condition had it not been so much injured; I am surprised that it is still alive. I saw it today when I went to gather the *Epipactis* which I enclose, and hope they will arrive uninjured. The Pyrolas are not yet in bloom.

Bewdley, June, 1857. GEORGE JORDEN.

MANDRAKES.

"Then Rachel said to Leah, Give me, I pray thee, of thy son's mandrakes."—Gen. xxx. 14.

"The mandrakes give a smell."—Sol. Song, vii. 13.

Can any of your readers inform me what was the plant of Scripture here translated *Mandrake?* I cannot make it to be the *Atropa Mandragora*. Hasselquist, speaking of Nazareth, says, he found there "a great number of Mandrakes, which, from the season it blossoms and ripens fruit, one might conjecture it was Rachel's *Dudaim*." The Abbé Mariti says it "grows like a lettuce, flowers purple, has a forked root, the fruit, size, and colour of a small apple, and ruddy." There is the *Cucumis Dudaim*, which is stated to grow in the Levant; fruit described as of the size and form of an orange, when ripe becoming yellow, and at length whitish, and has a fragrant, vinous, musky smell. Might not this have been the *Dudaim* of Scripture?

S. B.

RUBUS FRUTICOSUS.—*Common Bramble.*

I cut a branch of the *Bramble* on the high ground near Ryde this morning, which measured twelve feet in length, *the growth of one season*, and I think, from its appearance, it would have advanced another foot. This is a remarkable growth, considering what a very dry season it has been.

August 26, 1857. S. B.

NOMENCLATURE.

Sir,—Many persons are discouraged in their attempts to acquire a knowledge of botany by the irregularity and the unnecessary multitude of the terms used in botanical descriptions. In a science in which the details to be observed and recorded are so numerous and minute, precision in the terms employed seems to be indispensable before the study can become popular. It is unimportant whether the words are English, Greek, or Latin, or the two latter in an Anglicized form; they may be easily remembered, provided the same term is always employed to express the same thing. We have now *flower-head* and *capitulum*, *petiole* and *footstalk*, *lamina* and *blade*, *standard* and *helmet*, *canaliculate* and *channelled*, besides other words with merely a difference of termination, as *aril* and *arillus*, *axil* and *axilla*, *rach* and *rachis*, etc. etc. Can you not, Mr. Editor, furnish us with a Standard Glossary for the use of English botanists? I am aware that no one person's decisions would be universally accepted; but your list of contributors includes many of the leaders in the science, and if these would assist with their suggestions, something like general consent might be attained. I would propose that the Glossary should consist of two parts; the first containing the right terms, the second a "black list" of terms to be avoided. For those who are unacquainted with Greek and Latin it would be convenient if the plural forms of words in those languages were given. In this particular indeed we sometimes find educated botanists tripping: in Childs's 'Botanist's Field-book,' for instance, the author, although "F.R.C.S.," uses *ciliæ* as the plural of *cilium*. Another error in that work and in many others is the use of *ochreate* for *ocreate*, a mistake of some importance, as it might lead a novice to suppose that the term is derived from *ochre* instead of from *ocrea*.

K.

Abnormal Formations of Plants.

From '*Die Botanische Zeitung*,' Jan. 30, 1857.

Datura Stramonium.—The fruit of this species, as also that of *D. Tatula*, has been observed with three angles instead of the normal number. Only a few *apples* on the same plant exhibited this variation. The greater number was regular.

Fraxinus excelsior, var. *pendula*.—The fruit of this variety also manifests considerable irregularity. These varieties consist chiefly in the length and breadth of the wings, and in the pointed or obtuse form of the apex. Very rarely fruit with three wings has been noticed in which the wings are at right angles to each other.

Lolium temulentum.

Can any botanist or reader of the 'Phytologist' inform us if the above-named plant is cultivated in the vicinity of London, or anywhere else? In the seventh edition of Withering's 'Arrangement of British Plants' there is the following:—"The laws of China make it a capital offence to use them (the seeds of *Lolium temulentum*) in fermented liquors, and yet, *in the immediate vicinity of London*, this noxious weed *is cultivated by the acre*, and, it is to be apprehended, for no better purpose."—*From the* 'Phytologist,' vol. iv. p. 368.

Order Polygonaceæ, Number of Species in.

The above-mentioned Order is described in the 14th part of De Candolle's 'Prodromus,' together with *Proteaceæ* and other minor Orders of the Monochlamydeous plants. The number of Polygonaceous plants known at the present time is 690, of which 215 belong to the genus *Polygonum*, 134 to *Rumex*, and 20 to *Rheum*. The number of the British species is 30, and they form $\frac{1}{50}$ of the total number of our phænogamous plants. The entire number in the universal Flora is very far from reaching that high proportion, for they constitute only between $\frac{1}{131}$ and $\frac{1}{132}$ part of the whole phænogamous vegetation according to the most recent census of the vegetable kingdom. Hence it may be inferred that they are far more numerous in the temperate and colder regions of the earth than in the warmer, and also that they are more abundant in the northern than in the southern hemisphere. CENSOR.

ISNARDIA PALUSTRIS.

I am wrong in saying that my father discovered *Isnardia palustris* for the *second time* in England, on Petersfield Heath; I ought to have said for the *third time*. I had forgotten or overlooked the fact, that Mr. Goodyer discovered it in the same locality previous to 1667; in 1827 Mr. Borrer found it in another part of Sussex, thirty miles to the east, in Henfield, and a few years afterwards my father had the good fortune to re-discover it in the very same spot, probably, where it had been known nearly 200 years before. I am afraid however that at the present time *Isnardia palustris* must be ranked among the "*Species Defunctæ.*" Although plentiful for some years, the repeated visits of botanists quite exterminated the plant, and I am not aware that it has been gathered there for many years past. The Brockenhurst locality, mentioned in the seventh edition of the British Flora, I have not visited, and do not know whether this rare plant has had a better fate there than on Petersfield Heath. I will not ask you to insert more of this than the mere substitution of *third* for *second*, which common courtesy requires.

Next, with reference to the plants I should like to receive and give in exchange, I should be very glad of any of the following species:—*Oxytropis uralensis, Vicia Orobus, Lathyrus palustris, L. maritimus, Circæa alpina, Gentiana verna, Arbutus alpina, Draba aizoides, Pyrola uniflora, Campanula rapunculoides, Scrophularia vernalis, Cynoglossum sylvaticum, Lloydia serotina, Utricularia intermedia.*

I can offer in exchange any of the following:—*Delphinium Consolida, Fumaria Vaillantii, Arabis petræa, Astragalus alpinus, Saussurea alpina, Cineraria campestris, Phyteuma orbiculare, Seseli Libanotis, Azalea procumbens, Epilobium alpinum, Isnardia palustris, Saxifraga rivularis, Veronica saxatilis, Veronica alpina.*

Address,—*John Barton, Chichester, Sussex.*

ON THE TERM STRIÆ (STRIATED).

There is some vacillation in the application of this term. Lindley, in his Glossary, defines it thus:—"Streaks; any sort of longitudinal lines, whether arising from veins or fine streaks of colour, or long channellings." According to the above, *striæ* is a synonym of furrows, and *sulcate* is equivalent to *striate*. Query, would it not be more conducive to clearness if *striæ* was restricted to streaks of colour, as its more extended meaning is adequately represented by furrowed or channelled, or veined, or nerved, or ridged?

HORSE CHESTNUT, NATIVE COUNTRY OF.

From '*Die Botanische Zeitung*,' Feb. 20, 1857.

In several parts of Europe, especially in the south, the Horse Chestnut is observed growing beyond the limits of cultivation, though it be difficult to determine if it be a true *native* of the districts where it thus grows, in the botanical sense of this term. In a shady valley of Provence, named Moulin Blanc, there are here and there plantations of this tree, and the fruit has been dispersed through the agency of the streams, and there are now many trees naturally propagated during the last and present centuries.

The fatherland of this tree is probably Persia and Asia Minor. It is not wild at Constantinople nor in Greece. Recent travellers do not report this tree as a native of the latter country. It is said also to be found wild in the southern provinces of Caucasus.

Where is the account of Professor Buckman's discovery that *Trifolium pratense* and *T. medium* are identical as species, or constitute but *one*, not *two*, species?

[See 'Phytologist,' vol. ii. p. 114, where Professor Buckland is erroneously entered for Professor Buckman.]

What is the plant alluded to by Shakespeare, when he says—

> "Or hast thou eaten of the insane root
> That takes the reason prisoner?"—*Macbeth.*

S. B.

Has any botanical observer ever noticed *Scutellaria minor* upwards of a yard high, and of a branching and straggling habit?

NOTICES TO CORRESPONDENTS.

The correspondent who sent the *Rubus* (his cipher is mislaid) is hereby informed that the plant sent to be named is *R. laciniatus*, Willd. An obliging friend has informed us that its origin is unknown; but that in Sir W. Hooker's herbarium a sheet of specimens has a note from Sir James E. Smith, stating that he had this plant from the Rev. H. Davis, from Beaumaris. Mr. Howie is requested to give us more particulars about the plant he sent, which is *Agrimonia agrimonoides*, L. (*Aremonia*, Neck., *A. agrimonoides*, DC.), a plant indigenous to the south of Europe, viz. Greece, Italy, Hungary, Turkey, etc.

Miss Hutton is informed that the Australian *Ranunculus*, sent to the 'Phytologist' some time ago, is *R. plebejus*, Br.

Communications have been received from

Sydney Beisly; Dr. Lhotsky; J. E. S.; W. Sutherland; J. S. Mill; W. C.; Charles Howie; W. Marshall; A. Stamfield; J. W. K.; John Barton; John Lloyd; Rev. Robert C. Douglas; William Cheshire; John H. Davies; Professor Alphonse De Candolle; Dr. Lauder Lindsay; J. B.; J. Jones; R. C. D.; Miss Hutton; Dr. J. Windsor, F.L.S.; S. B.; Rev. J. Jennings; Ann Russell; E. Edwards.

BOOKS RECEIVED FOR REVIEW.

Irvine's British Plants, Part II.
Moore's Index Filicum, Part IV.

HYPOCHŒRIS MACULATA.

Botanical Visit to Humphrey Head, Cartmel.

By JOHN WINDSOR, F.L.S., etc.

Being in the neighbourhood of Humphrey Head, the rocky promontory projecting into Morecambe Bay, at the latter end (23rd) of last June, I had an opportunity of revisiting it for the first time since one former visit to it in my early life. The day was very fine, but oppressively hot, both to myself and two of my family accompanying me. The rock is about three miles from Flarkburgh, the residence of a relative, where I was staying. On our way we picked up *Orchis conopsea*, and on the wall by the lane-side *Cyathea fragilis, Asplenium Trichomanes* and *Adiantum-nigrum*, growing abundantly. *Ceterach officinarum* was also found there; but the latter was met with more abundantly on a wall at the village of Cark, near Flarkburgh. *Anagallis tenella* displayed its elegant little form and flowers in tolerable plenty also on the side of the lane. As we reached the rock, the showy blossoms of *Geranium sanguineum* appeared prominently on the somewhat rocky side of the hill, and *Sesleria cærulea*, but now nearly out of flower, grew there abundantly.

The chief object of my visit was to collect *Hypochœris maculata*, which, in the list of "Settle Plants" published in the 'Phytologist,' I mentioned having seen at Humphrey Head, but in places then inaccessible, as on that occasion, the tide being up, I only went along the upper part of the rock. On this visit, the tide having partly receded, I passed along the lower part, or base. In going along, I picked up *Thrincia hirta, Apargia hispida*, and some *Hieracia*, one of which proved to be, I believe, *Hieracium pallidum* (Backhouse). Next I was rewarded by coming upon occasional specimens, after climbing up the shelving rock, of the *Hypochœris maculata*, some remarkably fine ones, others smaller, for it varies a good deal in size, in the stem being simple or somewhat branched, in the leaves being almost entire or indented, etc. The plant grew abundantly on the rocks above, in situations totally inaccessible. On the grass and sands below the rocks, there were growing plentifully *Armeria maritima, Silene maritima, Poa maritima, Glaux maritima, Cochlearia officinalis, Arenaria* (*Lepigonum*) *marina*, etc.

The tide had not yet sufficiently receded for us to round the promontory, and therefore we retraced our steps along its base, until we had reached far enough beyond the perpendicular cliffs to reach its summit, and then wended our way again to the end of the headland above. The surface here produced very abundantly *Helianthemum vulgaris* in full flower, also Wild Thyme (*Thymus Serpyllum*), *Galium pusillum*, *Polygala vulgaris*, etc.

Creeping along the rocky ridges to near the top of the high perpendicular rocks above the sea, I found plenty of *Helianthemum canum,* but just out of flower, these differing also from *H. vulgaris,* not far off it. *Spiræa Filipendula* is plentiful here, and *Veronica spicata* (large form or *hybrida* of Smith) is still met with. On my former visit I also saw here *Crithmum maritimum* and *Asperula cynanchica,* and I doubt not we might have found them again, perhaps with other attractions, had we not already become considerably fatigued by the ramble and excessive heat of the day.

The fruits of the visit were left to be preserved at Flarkburgh, and on the morning after their arrival at Manchester I was accidentally favoured by a call of my friend J. G. Baker, of Thirsk, who looked them over with me, and seemed much pleased with the fine specimens of the *Hypochœris,* and interested with the two or three specimens of *Hieracium pallidum,* etc. I have omitted above to mention that I found and gathered this time one rather dwarf specimen of the *Hypochœris,* growing near the *Helianthemum canum,* at the top of the promontory.

SCOTTISH BOTANY.

Notes of an Excursion to the Saline Hills, Kinross, Clackmannan.

By the Rev. Hugh Macmillan, F.B.S.E., etc.

On this occasion our party consisted only of myself and a young friend. Remembering the discomforts of travelling in the intense heat, we waited at home till sunset, when a soft, cool breeze came stealing over the dewy fields and through the heated atmosphere, reviving the languid spirit, and preparing it for new enjoyment; and then we set out. Quickly traversing the intervening ground, where, especially in a field below Hillside, the *Plantago media* occurs in profusion, we reached the base of the hill;

here, in a little wild ravine, thickly and beautifully wooded, and enlivened by a very romantic waterfall, we found the *Mountain Dewberry* (*Rubus saxatilis*), creeping over the stony spots, the *Paris quadrifolia* luxuriating in the shady recesses, and the lovely *Menyanthes trifoliata* decking the marshes with its great trefoil leaves, and snowy, delicately-fringed blossoms. In the immediate neighbourhood we observed a quarry, composed of calciferous sandstone, abounding in Sigillarias, Stigmarias, Ferns, and other coal-plants, to such an extent that the walls around, which are built of the material, are literally black with their remains. Emerging from this picturesque retreat, we commenced the ascent of the hill, which, like all the other ranges in the district, is covered with a rich carpeting of excellent pasturage, and exhibits no rugged, rocky features, such as distinguish the gloomy peaks of the Grampians; and hence the plants with which it abounds are very little different from those of the plains, making no approach whatever to an alpine vegetation. Lingering now and then to admire the rosy blossoms of the *Sedum villosum*, exquisite flowers of the *Parnassia palustris*, and the other moorish plants which we met on our way, we at last reached a point below the summit, where the hill all at once becomes rocky and precipitous. Here, amid the loose fragments that had gradually fallen from the basaltic cliff above, and which were either bare and covered with Lichens, or partially clothed with vegetation, we found the *Allosorus crispus* growing in immense profusion; its clustering tufts looked so lovely in their perfect symmetry and fresh greenness, illumined as they were by the mellowed light of sunset, that we experienced, in its full force, the feeling which prompted Wordsworth to exclaim, when gazing with a friend upon a similar spectacle, on the mountains of Ambleside, where it occurs more frequently than with us, "How perfectly beautiful that is!" The fir-like spikes of the *Lycopodium Selago*, and the trailing wreaths of its more common congener, the *L. clavatum*, abounded in the immediate neighbourhood; while the brilliant Rosebay (*Epilobium angustifolium*) waved its willow-like leaves and bright crimson flowers on the ledges of the overhanging rocks. A short distance above this garden in the wilderness, rose up the green summit of the hill, from whence a magnificent and wide-spreading prospect unfolded itself to our admiring gaze. On the one side stretched out the vast fertile

Carse of Stirling, bounded by the lofty Ochil Hills, and the richly cultivated and wooded county of Kinross, enlivened by the calm, transparent expanse of the historic Loch Leven, and protected by the blue Lomonds, upon whose singularly beautiful outlines the eye of the celebrated painter, Sir David Wilkie, had often rested with unwearied admiration and delight; while on the other, the German Ocean blended with the sky in the far-off distance; and the extensive plains of the Lothians, divided from Fifeshire by the broad, silvery belt of the Frith of Forth, gradually ascended into the bleak ranges of the Pentlands and Lammermoors, enclosing in their magnificent setting, like a gem of purest ray, the classic monuments, spires, and buildings of the Modern Athens, guarded by its lion-like hill and its romantic castle, and enveloped in an ethereal mist, which, like a white veil on the face of a bride, enhanced its beauties and stimulated the imagination by the charms which it concealed. In a hollow between the summit on which we stood and a neighbouring hill, the chimney-stalk of a coal-pit attracted our attention, and led away our thoughts from the present to those remote ages in the history of the earth, when these plains, now covered with waving corn and studded with human dwellings, were immense marshes, covered with the fluted stems of gigantic *Calamites* and *Equiseta*, amid whose recesses the ichthyosaurus, and other huge monsters, roared and wallowed, and made war upon each other; and those sloping hillsides, so beautiful with their ever-varying effects of light and shade, and their pine-woods, like the shadows of thunder-clouds reposing amid the brighter green, were covered with huge Ferns and Lycopods, compared to which, their modern representatives, the Club-mosses and Rock-brake at our feet, dwindled into absolute insignificance; and when those hills, amid which we then stood, were active volcanoes, discharging their streams of boiling lava from their craters, or hurling up showers of ashes and cinders into the flaming and lurid clouds, which enveloped the sky from end to end.

Forming imaginative pictures like these, of the appearance which the surrounding country presented during the Carboniferous epoch, and indulging in these vague musings, influenced by every object which attracted our notice, and leading the thoughts afar off, peculiar to the evening hour, we slowly descended the hill, carrying with us the specimens we had collected. The dull, cold grey of night was fast creeping over the upper sky, leaving only a fringe of golden rays along the western horizon, which, falling on the grassy ground at our feet, brought into clear, glowing relief the yellow spikes of the Bog Asphodel, and the white tufts of the Cotton-grass, whose silky plumes waved in the soft, fitful wind. When we reached our home, all was still and silent, save the low whisper of the wind among the trees, and the wild, melancholy wail of the plover, which sounded lonelily far over the hills, from the very bosom of the gathering darkness. Several large, pearly stars appeared in the east, under whose mystic spell, as under the tender, loving look of a woman's eye, the landscape looked solemnly beautiful and holy. We gathered or observed few plants of more than ordinary interest on this occasion, but we collected what was perhaps far more valuable and useful—rich hoards of thought and grateful memories from the sights and sounds amid which we had spent the evening, which have since cheered and delighted us.

FAVERSHAM COMMON PLANTS.

By the Rev. H. Stowell.

The following are the commoner species found in the neighbourhood of Faversham:—

Anemone nemorosa.
Ranunculus aquatilis.
Ranunculus hederaceus.
Ranunculus Ficaria.
Ranunculus Flammula.
Ranunculus auricomus.
Ranunculus acris.
Ranunculus repens.
Ranunculus bulbosus.
Ranunculus sceleratus.
Caltha palustris.
Fumaria officinalis.
Capsella Bursa-pastoris.
Draba verna.
Cardamine pratensis.
Barbarea vulgaris.
Nasturtium officinale.
Sisymbrium officinale.
Erysimum Alliaria.
Brassica Rapa.
Brassica Napus.
Sinapis arvensis.
Viola odorata.
Viola canina.
Viola tricolor.
Polygala vulgaris.
Silene inflata.
Lychnis Flos-cuculi.
Lychnis diurna.
Sagina procumbens.
Arenaria serpyllifolia.
Stellaria media.
Stellaria holostea.
Stellaria graminea.
Cerastium glomeratum.
Cerastium triviale.
Linum catharticum.
Malva sylvestris.
Tilia intermedia.
Hypericum perforatum.
Hypericum quadrangulum.
Acer Pseudo-platanus.
Geranium molle.
Geranium Robertianum.
Oxalis Acetosella.
Spartium scoparium.
Ulex europæus.
Trifolium repens.
Trifolium pratense.
Trifolium procumbens.
Trifolium filiforme.
Lotus corniculatus.
Vicia sativa.
Vicia sepium.
Lathyrus pratensis.
Prunus spinosa.
Spiræa Ulmaria.
Geum urbanum.
Agrimonia Eupatoria.
Potentilla anserina.

Potentilla Fragariastrum.
Fragaria vesca.
Rosa canina.
Alchemilla arvensis.
Cratægus Oxyacantha.
Epilobium parviflorum.
Epilobium montanum.
Myriophyllum spicatum.
Callitriche verna.
Sedum acre.
Hedera Helix.
Sanicula europæa.
Conium maculatum.
Bunium flexuosum.
Heracleum Sphondylium.
Daucus Carota.
Anthriscus sylvestris.
Chærophyllum temulentum.
Sambucus nigra.
Lonicera Periclymenum.
Galium verum.
Galium palustre.
Galium Aparine.
Knautia arvensis.
Apargia hispida.
Apargia autumnalis.
Hypochœris radicata.
Sonchus arvensis.
Sonchus asper.
Sonchus oleraceus.
Crepis virens.
Hieracium Pilosella.
Hieracium vulgatum.
Taraxacum officinale.
Lapsana communis.
Arctium Lappa.
Carduus lanceolatus.
Carduus palustris.
Carduus arvensis.
Centaurea nigra.
Artemisia vulgaris.
Filago minima.
Filago germanica.
Solidago Virgaurea.
Senecio vulgaris.
Senecio Jacobæa.
Bellis perennis.
Chrysanthemum leucanth.
Pyrethrum inodorum.
Achillea Millefolium.
Calluna vulgaris.
Ilex Aquifolium.
Fraxinus excelsior.
Solanum Dulcamara.
Veronica arvensis.
Veronica serpyllifolia.
Veronica Anagallis.
Veronica Beccabunga.
Veronica officinalis.
Veronica Chamædrys.
Veronica hederæfolia.
Veronica agrestis.
Bartsia Odontites.
Euphrasia officinalis.
Melampyrum pratense.
Scrophularia nodosa.
Linaria vulgaris.
Mentha aquatica.
Mentha arvensis.
Thymus Serpyllum.
Teucrium Scorodonia.
Ajuga reptans.
Stachys palustris.
Stachys sylvatica.
Stachys arvensis.
Glechoma hederacea.
Prunella vulgaris.
Myosotis cæspitosa.
Myosotis arvensis.
Echium vulgare.
Primula vulgaris.
Anagallis arvensis.
Plantago major.
Plantago lanceolata.
Chenopodium album.
Atriplex patula.
Atriplex angustifolia.
Polygonum Persicaria.
Polygonum aviculare.
Polygonum Convolvulus.
Rumex crispus.
Rumex obtusifolius.
Rumex Acetosa.
Rumex Acetosella.
Euphorbia helioscopia.
Euphorbia Peplus.
Mercurialis perennis.
Urtica urens.
Urtica dioica.
Ulmus montana.
Quercus Robur.
Fagus sylvatica.
Corylus Avellana.
Alnus glutinosa.
Betula alba.
Populus nigra.
Salix viminalis.
Salix cinerea.
Hyacinthus non-scriptus.
Alisma Plantago.
Lemna minor.
Arum maculatum.
Juncus conglomeratus.
Juncus effusus.
Juncus acutiflorus.
Luzula campestris.
Phalaris arundinacea.
Anthoxanthum odoratum.
Phleum pratense.
Alopecurus pratensis.
Agrostis canina.
Agrostis vulgaris.
Agrostis alba.
Aira cæspitosa.
Arrhenatherum avenaceum.
Holcus mollis.
Holcus lanatus.
Poa annua.
Poa pratensis.
Poa trivialis.
Briza media.
Cynosurus cristatus.
Dactylis glomerata.
Festuca ovina.
Festuca pratensis.
Bromus mollis.
Triticum repens.
Triticum junceum.
Polypodium vulgare.
Lastrea Filix-mas.
Pteris aquilina.
Equisetum arvense.
Equisetum palustre.
Equisetum limosum.

FIFESHIRE FERNS.

By Charles Howie.

The distribution of Ferns, over a county so highly cultivated as Fife, is principally confined to primitive crags, subalpine woods, and the sides of water-run dens, where murmuring streams present a monument of departed marsh, where Ferns luxuriate with grace and beauty.

Polypodium vulgare, L. Abundant on the sea-cliffs east of St. Andrews, covering old walls, crags, and rocky dens, and the stems of moss-clad trees.

Polypodium Dryopteris, L. Abundant in Ardrie Woods, Drumcarro Crag, etc.

Polypodium Phegopteris, L. Under shaded rocks, Kenly Den, and Lommonds; sparingly.

Allosorus crispus, Bernhardi. On West Lommonds and Drumcarro Crag; sparingly.

Cystopteris fragilis, Bernhardi. In Ghoul's Den, Lommonds, Ardrie Woods, etc.—Var. *Dickieana.* East seacoast; sparingly.

Polystichum aculeatum, Roth. Presenting various forms; the var. *lobatum,* in Kenly Den, occasionally dividing at the stipes, presenting separate fronds, others dividing at the apex of the rachis.

Lastrea Oreopteris. Abundant on the West Lommonds, Tent's Muirs, and generally met with sparingly over the county.

Lastrea Filix-mas, Presl. Of universal distribution, presenting marked variations.—The var. *incisa* is in luxuriant form on Mount Hill, Cupar. A form approaching *abbreviata* is found on the east seacoast, and the beautiful form *paleacea* is found in several alpine woods. The variety *bifurcata,* found by Dr. Lyall near Newburgh, although not constant in the forked rachis at the apex of its pinnules, presents a lanceolate and serrated outline to mark the variety.

Lastrea spinulosa. In subalpine woods, sparingly distributed.

Lastrea dilatata, Presl. Abundant over the county, presenting marked variations.—Var. *glandulosa.* Under the shade of rocks, by the seacoast.

Athyrium rhæticum, Roth. On Fife Ness, associated with other species.—A similar variety, with purple stipes and rachis;

abundant. The var. *molle*, on the seacoast, shows a tendency to crisp and divide at the rachis.

Asplenium Adiantum-nigrum. Abundant on rocks and walls. —The var. *obtusum*, by the seacoast, and the variegated form, is also met with.

Asplenium marinum. On the seacoast, in fissures of rocks and caves.—The difference of form is sustained under cultivation.

Asplenium Trichomanes, L. In Ghoul's Den; on a wall near Markinch; and sparingly distributed on rocks and walls.

Asplenium germanicum, Weiss. Station three miles from Dunfermline (since destroyed).

Scolopendrium vulgare, Symons. Under rocks, Kenly Den, and near Newburgh; sparingly.—A var. with divided extremity of the frond, and one with narrow undulated fronds, is also found.

Blechnum Spicant, Roth. Of general distribution; abundant on the east seacoast.

Pteris aquilina, L. Very abundant presenting; the various smooth, serrate, and lobate forms.

Hymenophyllum unilaterale, Willdenow. We have found it only in one station in this county.

Botrychium Lunaria, Sw. Abundant on St. Andrews, Tent's Muirs, Largo and Kirkaldy Links, near Lucklaw Hill, Newburgh, etc.

Ophioglossum vulgatum, L. We have found it on one station by the south side of the county.

BOTANY OF PERTH.

Notes on the Flora of Perth. By W. Lauder Lindsay, M.D., of Perth.

I. *Situation and Temperature of the District.*

The district is bounded on the north by the upheaved clay slates, mica slates, and gneiss of the outliers of the Grampian range, and is intersected by the trappean range of the Sidlaws, rising to a varying elevation of 500 to 1400 feet. This range of hills may be regarded as a continuation of the Ochils to the seacoast at or near Montrose. The district is also traversed by many narrow trap-dykes, some of which run continuously for twenty to thirty miles.

The town of Perth lies immediately on the Tay, in the bottom of a basin or ample theatre, bounded by hills. In lowness of situation and in the physical configuration of the surrounding country, it resembles Dumfries; and the climate of the two places is also in great measure similar. The "statistical account of Scotland" appears to me to give too favourable a view of its meteorology or climatology. From the tables there given it may be laid down that the number of dry to rainy days is more than as 2 to 1; the mean annual amount of rain 25·94 inches; the mean barometric pressure 29·8, and the mean annual range of the barometer 2·1; the mean temperature 48·14, and the mean annual range of the thermometer 57·5. Such results would indicate climatological conditions very favourable to health. The climate however appears to me to be more moist and variable than these statistics show. During a great part of the year, spring, autumn, and especially winter, the banks of the river in and around the town are seldom free from dense, cold mists, which cannot fail to be inimical to health. The nature and amount of the Lichenose vegetation of the neighbourhood, of itself indicates a moist condition of the atmosphere. There is a marked difference in the temperature and hygrometric state of the atmosphere between the town and moderate elevations above it. The atmosphere on the hills above Kinfauns is often quite clear while the town is enshrouded in mist; and it is warmer in winter and cooler in summer than that of the town; hence the sanitary condition of the villages, villas, and houses built on Kinnoull or Craigie hills, cannot fail to be, to a certain extent at least, superior to that of town residences.

II. *Lichen-flora of the District.*

As my attention has been chiefly directed to the Lichenose vegetation of the district, and as it is a subject of greater novelty, and hence greater interest, than the ordinary Phanerogamic vegetation, I shall notice it first in order. I can however here only notice the commoner Lichens, and even these briefly.

Usnea barbata, in its protean forms, is very common on trees in the fir-woods on Kinnoull Hill and neighbouring spurs of the Sidlaw range. I have not once found it here in fructification however. The varieties *florida, ceratina, plicata,* and *dasypoga,* seem to graduate into each other, and to be frequently indistinguishable; it is often granulose-pulverulent or roughened by soredic wartlets. This and many other species lose their greenish tint, and acquire a yellowish, reddish, or brownish colour in the herbarium.

Cornicularia jubata is very plentiful in the same wood, and associated with the preceding species; var. *prolixa* is most frequent; var. *chalybeiformis* I have found on boulders and rocks on Birnam Hill, one of the outliers of the Dunkeld Alps. I have not met with the grey-coloured variety, nor have I found this species in fruit in this neighbourhood.

Ramalina farinacea is abundant on roadside hedges, and on trees in the hill-woods so common in this neighbourhood. It is usually associated with varieties of *R. fraxinea,* especially var. *fastigiata* and *calicaris.* Schærer constitutes it into a distinct species, but I am inclined, with Fries, to regard all the British *Ramalinas* as varieties of a single species. *R. fraxinea:* I have never seen this species in fruit, and believe it to be a sorediiferous or sterile form of *R. fraxinea,* var. *calicaris. R. fraxinea,* especially its varieties above mentioned (*fastigiata* and *calicaris*) are also common in the same habitats. I have frequently noticed, on the same hedge, transition forms between these and *R. farinacea.* Var. *ampliata* is common on trees of various kinds on the banks of the Tay, above its junction with the Almond, and in the grounds of various noblemen's residences in the district. *R. scopulorum* is a peculiar saxicolous species, having a rigid, cartilaginous thallus, the extremities of the thalline segments being frequently roughened or tuberculated by the spermogones of the plant. It grows chiefly on seacoasts, and attains considerable size and thickness on the rocky coast of Forfarshire. Dwarf specimens are common on the rocky summit of Kinnoull Hill. I have not found it in fruit in this district.

Physcia furfuracea is common on trees in the hill-woods above Muirhall and Kinfauns. It is seldom fertile, or much covered by a furfuraceous or isidioid efflorescence. *P. prunastri* is abundant in the same woods. In fructification it is sometimes dwarfed, deformed, and very sorediiferous. This condition I have found most fully developed in specimens gathered in the wood around

Floor's Castle, Kelso. *P. ciliaris* I found in large patches on the top of a wall in Glenalmond. This species is invested with a peculiar interest, from having been the first Lichen in which the presence of spermogones and spermatia was detected and described by Itzigsohn. The spermogones are the brownish or blackish paint-like spots which are sprinkled over the thalline laciniæ.

Cetraria glauca, var. *vulgaris,* is common on the trunks of the larger trees, such as the Beech, Elm, or Oak, in the woods of Kinnoull Hill. I have not found it in fruit. *C. islandica,* var. *vulgaris,* occurs on bare, rocky ground on the hill-heaths above Muirhall, associated frequently with *C. aculeata* and various *Cladonias.* *C. islandica* and *C. aculeata* have seemed to me sometimes to graduate into each other, especially narrow, crisp states of the former, into broadened conditions of the latter. *C. aculeata* is much more abundant than *C. islandica.* I do not remember to have gathered it in fruit here, but I have found it fertile in the Pentlands.

Peltigera canina and *P. polydactyla* are common among Moss on the hill-heaths above Muirhall.

Various *Umbilicarias* occur on Birnam Hill and the Dunkeld Highlands, but these do not properly fall within the district I have described; they are essentially montane or alpine species, but I have met with some of them at comparatively low elevations, and in lowland districts; for instance, on a wall a short way up the hill, immediately behind the mineral spring of Innerleithen.

Parmelia amplissima I have found sparingly on rocks on Craigie Hill, above the tunnel of the Scottish Central Railway, through the hill of Moncrieff, and facing the Edinburgh highroad. It is neither fertile nor very glomuliferous. *P. pulverulenta* is abundant, and in fine fructification on roadside trees, especially the Ash and Oak, and on roadside walls around Perth; for instance, on the old Scone road. It presents great variety in the degree of pruinosity of the thallus and apothecia, in the colour of the thallus, and in the form and size of its laciniæ, and it appears to me sometimes to pass into, or, on superficial examination, to be indistinguishable from, *P. stellaris,* which is also very common in similar habitats. The varieties *hispida* and *tenella* of the latter species (Schærer), which include the *Borrera* *tenella* of British Lichenologists, are frequent on walls, usually associated with *P. parietina*. *P. ceratophylla*, var. *physodes*, is abundant on the roots, trunks, and branches of trees, especially Firs, in the woods on Kinnoull Hill, and on all the adjacent hills. I have frequently met with it in fructification, both on walls and trees. It presents great variety in the form and size of its laciniæ, and the degree to which they are sorediiferous at their extremities, and covered with minute black punctuations. The latter, which are often sprinkled over the thalline laciniæ, are usually the spermogones of the Lichen, but are sometimes also minute parasitic fringe. *P. saxatilis*, var. *leucochroa*, is also common on trees as well as stones, almost everywhere throughout the district, the furfuraceous form frequently predominating. I have met with the latter in fine fructification on roadside trees, near Pitcaithly wells. Var. *omphalodes* is common on the Dunkeld hills; but transition forms between var. *leucochroa* and *omphalodes* are sometimes found on gneissic boulders on the hill-roads round Perth; for instance, on the Strathmore Hill road, a few miles beyond Bonhard. I have sometimes found it of a pitchy blackness, occasionally variegated with white, from portions of the cortical layer being eroded, exposing the subjacent white, cottony, medullary layer. *P. conspersa* occurs on the rocks of the summit of Kinnoull Hill, especially in an abortive or isidioid condition. I have nowhere found this species (var. *latior*) so abundant, or in so fine fructification, as on old walls around Moffat, Dumfriesshire. *P. olivacea* occurs sparingly on trees in the hill-woods above Kinfauns, but in good fructification. Various forms of *P. fahlunensis* exist on the Dunkeld hills, associated with other essentially alpine Lichens. *P. aquila* is abundant on rocks on the summit of Kinnoull Hill, and in good fructification. *P. parietina* is plentiful everywhere on trees, hedges, walls, and rocks. It presents several marked varieties; one of these generally occurs on damp, shady walls, and is variegated with white; this is found, on careful examination, to be due to partial erosion, probably by insects, of the cortical layer of the thallus, exposing, as in the case of *P. saxatilis*, var. *omphalodes*, already mentioned, the white, cottony medullary tissue. The apothecia are sometimes confluent or symphycarpeous, convex and cephaloid; they are also sometimes very numerous, but very minute, occasionally they are absent. The thalline laciniæ differ greatly in size and in the degree and mode of division; its rudimentary or young state appears to be one species of the old genus *Lepra* or *Lepraria*, which is now found to be made up of rudimentary, sterile, or abortive forms of other species and genera. An examination of the sorediiferous degenerations of the thallus of Lichens, and of the varieties producible in the characters of the thallus, by changes in external circumstances, has led to the expulsion from our modern systems of classification of the genera *Lepra* or *Lepraria*, *Spiloma*, *Isidium*, and *Variolaria*, all of which consist of abnormal or young states of better-established and more familiar genera or species.

Lecanora saxicola and *L. coarctata* are common and abundantly fertile on the rocks of the summit of Kinnoull Hill. *L. atra* is abundant on walls and rocks throughout the district, sometimes forming a complete coating of the tops of walls, as about Invergowrie. It exists also in variolarioid, or sterile and abortive states. Lignicolous and saxicolous forms of *L. subfusca* abound everywhere. There is great variety in the form and colour of the apothecia, which are sometimes black, in which case this species cannot be easily distinguished from *L. atra*. In the latter Lichen however the apothecia are black, *ab initio*, while in the former they only become so with advancing age. Saxicolous and lignicolous forms of *L. pallescens*, var. *parella*, likewise are abundant, both in the fertile and in the isidioid and variolarioid conditions. Isidioid forms occur chiefly on rocks and stones; such forms of this and other *Lecanoras*—as *L. rimosa*—constitute the chief species of the old genus *Isidium*, and are valuable as tinctorial Lichens. Variolarioid states generally occur on trees, where they are often associated with similar conditions of *Pertusaria communis*: I have noticed them chiefly in winter, when the trunks of many of the larger forest-trees in the woods of Kinnoull and Kinfauns seem covered with species of the old genus *Variolaria*. *L. tartarea* occurs, but seldom in fructification, on trap-rocks in one of the transverse ravines or valleys of the Sidlaws, behind Kinfauns, associated with *L. hæmatomma*, *L. pallescens*, var. *parella*, and *Urceolaria scruposa*, and also, along with *L. ventosa*, on a huge gneissic boulder on the Strathmore Hill road, a few miles beyond Bonhard. The occurrence of this, with other alpine or subalpine Lichens, at an elevation so moderate, and on a boulder of such mineralogical constitution, would seem to indicate that the geological nature or mineral structure of the habitat has frequently more to do with the growth or the geographical distribution of particular species than is usually supposed, for we can scarcely conceive that this gigantic boulder was transferred from the Grampians, —its nearest geologic source,—to its present resting-place, with its present Lichenose coating. On Birnam Hill and the Dunkeld Highlands this species is abundant in a variety of states, generally having a very thick, verrucose, and friable thallus of a leaden-grey tint, along with large symphycarpeous or confluent apothecia. *L. varia,* in some of its numerous forms, is common on palings and the fences of fields about Muirhall. *L. hæmatomma* occurs as a white coating of some trappean rocks in a ravine above Kinfauns. I found this Lichen very abundant last summer on North Berwick Law.

Urceolaria scruposa, var. *bryophila,* occurs as a coating of Moss above the same rocks on which *L. hæmatomma* and *L. tartarea* grow, in one of the ravines of the Sidlaws.

Lecidea canescens is found on the tops of walls and on rocks, but I have never found it anywhere in fruit. *L. geographica,* especially its varieties *atro-virens* and *alpicola,* is common on old walls above Corsiehill, Kinnoull, and on the Dunkeld hills. *L. atro-alba,* var. *concentrica* of Leighton (Lichenes Britan. Exsic. fasc. i.), is common on the tops of walls on the old Scone road, the apothecia being generally arranged in concentric circles. *L. punctata,* in some of its varieties, especially var. *parasema,* is frequent on various trees in the hill-woods, associated usually with various *Graphideæ* or *Verrucariæ.* *L. sanguinaria* occurs in similar habitats. *L. æruginosa* is common as a coating of moist clayey ground on the hill-heaths, as above Muirhall. *L. ferruginea* is common on walls, as above Corsiehill, Kinnoull. It seems often to be indistinguishable from various other *Lecideas,* having red or yellow apothecia.

The *Graphideæ* are not common in the district. Some of the *Arthonias* are found associated with *Lecideas* and *Verrucarias* on the smooth bark of young Beeches and other trees, but I have not noticed many species of *Opegrapha, Graphis,* and other genera. Where *Usneas, Cornicularias, Physcias,* and *Ramalinas* are abundant, the *Graphideæ* appear to be rare, the genera just mentioned usually inhabiting rough barks of trees, such as the

Fir tribe, while the *Graphideæ* are characteristic of the smoothish barks of large forest-trees in lowland districts.

Neither the *Stereocaulons* nor *Sphærophorons* are common in the district, as they are chiefly montane or subalpine species. The small *Stereocaulon quisquiliare,* Hoff.,—the *S. nanum* of British Lichenologists,—occurs on the moist shady rocks of the Den of Balthayock. *S. denudatum* also occurs on rocks in various gorges of the Sidlaws.

Bæomyces roseus occurs on a moist clayey soil on the hill-heaths above Muirhall. This neighbourhood is rich in *Cladonias,* offering, as it does, abundance of the conditions, terrestrial and aerial, most favourable for their development and growth. They grow chiefly on the moist rotten stumps of old trees, and on moist peaty soil on the hill-heaths or in the hill-woods. It is quite impossible to touch upon the various phases or forms under which the several species of *Cladonia* occur: this of itself is a labour of no little complexity and extent. Most of the British *Cladonias* are here met with, of which we may specify *C. extensa* (the old *C. coccifera*), with its bright scarlet apothecia, *C. deformis, C. bellidiflora,* with its polycephalous apothecia,—one of the most handsome of our common Lichens,—*C. pyxidata, C. alcicornis, C. gracilis, C. squamosa, C. stellata,* var. *uncialis,* the old *C. uncialis, C. furcata,* often associated with *Cetraria aculeata* and the next species, *C. rangiferina,* which is common on all the hill-heaths.

Like the *Graphideæ,* the *Verrucarias* do not seem very common in the district. *V. maura* occurs on stones on the banks of the Tay, in Invergowrie Bay, and there are a few other lignicolous and saxicolous species.

Pertusaria communis is abundant on the exposed roots and lower parts of the trunks of the larger forest-trees. Variolarioid and isidioid conditions however are much more common than fertile states; the former especially often almost cover the trunks of large trees. In the variolarioid state of the apothecia the soredia are sometimes flat, constituting the *Variolaria faginea* of the older works on Lichenology, or concave and discoid, forming the *V. discoidea,* or again globular; in other cases they are sprinkled over the surface of the thallus, converting it, by their confluence, into a white mealy crust. The isidioid condition is sometimes conjoined with the variolarioid. In some of these abortive states, as well as in *Urceolaria scruposa*, and other Lichens having a tartareous, pale, friable thallus, I have detected, by the microscope, octohedral crystals, apparently of oxalate of lime, and in young specimens of *Parmelia parietina*, and other species, acicular crystals, resembling the raphidian crystals of phosphate of lime contained in the parenchymatous cells of many of the higher plants.

Endocarpon miniatum, var. *umbilicatum* and *complicatum*, are frequent on the face of the mural precipice of Kinnoull Hill, at its lower part, but never attaining a diameter exceeding an inch. Hooker, in his 'Flora Scotica,' mentions *E. leptophyllum* as occurring "upon rocks on the hill of Kinnoull, near Perth." This Lichen is probably only a subvariety of var. *umbilicatum*, which I have just mentioned. Var. *umbilicatum* I have also found on boulders on the banks of the Tay, frequently covered by the river, below the famous salmon-breeding pond at Stormontfield.

Several *Callemas* grow in the same habitats as the *Endocarpons*, viz. on rocks which are either constantly or frequently moist or covered by water.

AGRIMONIA AGRIMONOIDES, *L.*

"Respecting *Agrimonia Agrimonoides*, I have to state that in the border of a plantation, about seventy or eighty yards from Kinfauns garden-wall, one plant of it was observed in flower about the middle of June this year. Second locality, near the village of Rait, in the parish of Kilspindie, by the side of a hedge surrounding a plantation: the number of plants observed might be a dozen, and occupying an extent of four or five yards, and distant from the manse (or minister's house) about sixty yards; this was in the end of June this year. The plants were then in flower. Rait village is near the *old road* from Perth to Dundee, and ten or eleven miles distant from either place. Thirdly, Scone station: it is found in Scone Wood, from half to three-quarters of a mile south-east of the palace, distributed over an area of four or five acres, plentiful: observed also first in June this year. In none of these localities (as far as I am able to ascertain) was it ever observed by any botanist before. The reason is obvious. From its great similarity to *Geum urbanum* while in flower, it must have been overlooked as a dwarf or abnormal state of that plant. From the above facts you will readily be led to infer that it is an escape from a garden. From this I dissent. First, there is nothing showy or attractive in its appearance to render it desirable as a denizen of our gardens; and secondly, although as yet it has only been found near the habitations of the great, yet several of our plants regarded as aborigines invariably occupy similar stations, *e.g. Chelidonium majus*, which I never found elsewhere. This plant (*Agrimonia Agrimonoides*) loves the sylvan shade in all the places above-mentioned; it was screened from the solar rays either under hedges or bushes. The Kinfauns and Rait stations I have not seen, but I have had plants from them both. Scone I know well, having been frequently there last year; but an infirm state of health prevented me this summer from visiting the woods near the palace, or in fact making botanical excursions this season of any extent. I therefore employed, or rather requested, a journeyman gardener at Scone Palace, with whom I was acquainted, and to whom I gave instructions in botany, to look out for plants, and I would name them for him. This man last June had occasion to visit Kinfauns, and, though not a botanist, chanced to observe the plant in question, which he showed me, and, being in flower, I said it was *Geum urbanum;* but on an examination of the reproductive organs, I found it to differ entirely from that plant, and to agree in its generic character in all essential particulars with *Agrimonia.* The question was now, What Agrimony is it? I got a glimpse of Loudon's 'Encyclopædia of Plants,' and, as there are but few species of Agrimony known, had little difficulty in finding it to be what it is. This man, with a few other of the Scone gardeners, on the Scone Sacramental Fast-day, went down the carse at my request to collect plants, and again discovered it in flower near Rait village, and brought me specimens. About the same time he observed it in Scone Wood, where it is abundant. The gardener's name is Adam Simpson, so that, although I was the first to name it and announce its discovery, I was not the first to see it."

JOHN SIM.

Reviews.

The Grasses of Great Britain. Illustrated by JOHN E. SOWERBY; *described, with Observations on their Natural History and Uses, by* CHARLES JOHNSON, Botanical Lecturer at Guy's Hospital.

By the prospectus we learn that "the work will contain about 140 plates, each representing a species, with magnified views of its flowers, executed from drawings made expressly for this monograph;" also that it will "be completed in thirty monthly parts, corresponding with the 'Ferns of Great Britain and their Allies,' with the plates full coloured, at 1*s*. per part."

Part the First, which we have now the pleasure of announcing, contains exquisitely engraved and coloured figures of *Anthoxanthum odoratum, Nardus stricta, Leersia oryzoides, Alopecurus pratensis,* and *A. alpina.* The sample is of surpassing excellence, and a marvel of cheapness, even in these days, when the prices of books are reduced to the very extreme limits of cheap production. If the succeeding parts equal the first in pictorial beauty and strict accuracy, the work may and will occupy a distinguished place among the artistical scientific works of our age and country.

We give the following quotation as a sample of the style; this will speak for itself:—"*Meadow Fox-tail Grass,* plate iv. . . . One of the most common of our meadow Grasses. Its strong, fibrous roots take a firm hold of the soil, but the plants have little or no tendency to extend themselves laterally by creeping. The flowering stems vary in height, according to the character of the soil, from one to three feet, having the sheath of the uppermost leaf usually much inflated. The ligule is very short and obtuse. The spike or spicate panicle is of a light or yellowish colour, with a tinge of grey, owing to the silvery hue of the long awns; it varies in length from one to three inches. Anthers yellow. . . .

"This Grass, as observed by Martyn, possesses the three great requisites of quantity, quality, and earliness, in a superior degree to any other; in regard to quantity it has been affirmed to yield more bulk and weight of hay than any other Grass hitherto subjected to experiment, and as the first crop may be cut early, or about the middle of May, the latter math is unusually productive, exceeding in value, according to Sinclair, the crop at the time of flowering, in the proportion of 24 to 13. These remarks are only applicable to it in favourable situations, as at Woburn; the produce was nearly three-fourths greater from a clayey loam than from a sandy soil, and the Grass from the latter was of comparatively less value, in the proportion of 4 to 6. A moderately stiff and moist soil seems necessary to elicit the qualities that render the Meadow Fox-tail valuable; in a poor and dry one it becomes almost useless." We know, from observation, that this is true, and we hope that the graziers, or rather the cultivators of the British soil, will avail themselves of the labours of Mr. Sowerby, from whose faithful delineations they will readily recognize the valuable Grasses; and if they will peruse the plain and ample account of them by Mr. Johnson, they will learn the merits of the various kinds, and will be informed how they may best avail themselves of their respective qualities.

Index Filicum: a Synopsis, with Characters of the Genera, and an Enumeration of the Species of Ferns. By THOMAS MOORE, F.L.S., F.H.S., etc. etc. Part IV. London: Pamplin.

This Part contains the names of the species from *Adiantum* to *Anetium*, with the synonyms, the varieties, and references to all the authors who have, during the last two or three centuries, made these plants the objects of their studies and lucubrations. Such a compact and well arranged mass of information was never before collected on this or any other exclusively botanical subject. The work will supply the student of Ferns with a key to all that has ever been written on the subject, at least to all that is accessible. The author is amply gifted with patience, perseverance, and an intense love of the species to which he so zealously devotes his exertions. It is verily an elaborate index (*index locupletissimus*), a labour of love. We wish and hope that the circulation of the work may be quite as great as the skill and pains that have been spent on its production.

BOTANICAL NOTES, NOTICES, AND QUERIES.

SENECIO SARACENICUS IN KENT.

Sir,—The specimen of *Senecio saracenicus*, which you noticed growing on the border of the brook at the bottom of my garden, was brought by me out of Somersetshire two years ago. The plant is not, I believe, indigenous in this county, and, as far as I know, is the only example of it to be found in Kent. Having planted a portion of the root in the wet soil close to the bank of the brook in 1855, I thought no more about it until the spring of last year, when, to my surprise, I remarked that it had thrown up two stems, which appeared to thrive, and in the autumn were each surmounted by a crown of large yellow flowers. This year the number of stems has increased to seven, which, while I write, are topped by superb heads of flowers, as you saw. I have no doubt but that it will creep along the whole edge of the brook, if undisturbed. In a year or two I purpose transferring a few of the roots to the neighbouring bank of the Medway, where it will form a fine addition to the Flora which already embellishes the banks of that river as it winds round the meadows of Allington Castle. The parish of Batcombe, from whence I procured it, is in the triangle formed by the towns of Frome, Bruton, and Shepton Mallet, about five miles from the last, the vicinity of which is one of the few localities laid down by Withering as its natural habitat. It lines the bank of a rivulet which forms the southern boundary of a certain meadow, over which passes the footpath to Spargrove, extending along its whole length, and forming a thick hedge of stems, which, in autumn, are surmounted by a broad and deep golden fringe of bright yellow flowers. I call to mind this bank for many years, but do not remember to have observed the plant in any other spot in the parish. None of the inhabitants knew what it was, but often expressed their surprise at its having taken possession of this solitary spot exclusively. A lady, on a visit in the neighbourhood with me, was, with the aid of Withering's work, enabled to find its true name.

Brooklyn, near Maidstone, Sept. 10. EDW. BURTON.

SEDUM SEPTANGULARE IN SOMERSETSHIRE.

When I discovered this plant, it was growing upon a bank on the left-hand side of the turnpike-road between the town of Axbridge and the village of Churchill, in company with *Sedum rupestre*.

I had a copy of Lindley's 'Synopsis of the British Flora' in my pocket, and upon my referring to it I found *S. sexangulare* described as having six or seven angles. Never having seen the plant in a wild state, I formed a too hasty conclusion that this was the plant which was called *sexangulare* by British botanists. I did not attach much importance to the discovery, but, wishing to have a living plant, I took a piece of it with me. After my return home I examined my plant previous to planting it, and finding that I could not identify it with *Sedum sexangulare* of British botanists, I referred to Haworth's 'Plantarum Succulentarum,' where (page 116) I found it described under the name of *Sedum septangulare*, and recorded as a European, and not as a British species. The nearest British species to which it is allied is *Sedum reflexum*, from which it differs in being larger in every part, more lax in habit, more glaucous, and in its leaves being constantly and regularly in seven distinct rows. *Sedum reflexum* is described by botanists from Linnæus downwards as having its leaves scattered, but such is not the case, for its leaves are in nine rows as constantly as those of *S. septangulare* are in seven. It must be admitted that they are rather difficult to count when the branch is in a procumbent state, but if a branch is examined which grows more upright, and which is in a growing state, its nine angles are then very apparent.

I have three plants by me, which are producible at any time should any doubts arise upon the matter. JOHN LLOYD.

[Without contradicting or even controverting the statements of our respected correspondent, we beg to state that when we were at Boxley Abbey, near Maidstone, we gathered, on the old and partly ruinous abbey-wall, numerous specimens of what appears to be *Sedum reflexum*, and we counted the ranks of leaves, and found them to be invariably *seven*. At Hadleigh Castle, Essex, on a part inaccessible to us, grew a *Sedum* which was concluded by appearance to be the same as the one taken from Boxley Abbey. We have also preserved our specimens alive, and Mr. Lloyd is welcome to compare them with his whenever it is convenient for him to do so.]

ARUM ITALICUM, DEVELOPMENT OF HEAT IN THE SPADIX OF.

(From Curtis's '*Botanical Magazine*,' vol. 1. pp. 2432–3.)

"It was in this species that M. Lamarck observed an extraordinary degree of heat, amounting almost to burning, in the spadix, at a certain epoch, probably that when the fecundation of the germens takes place. This high temperature continues only for a few hours; and when several spadices come from the same root, the heat is evolved from each in succession as they arrive at the proper epoch, while the rest remain at the same temperature as the surrounding atmosphere. This observation is said to have been confirmed by Desfontaines." Mr. Curtis adds:—"We are not informed however that the fact was proved by the thermometer; and if not, it is possible that some pungent vapour might occasion the sensation of heat in the fingers, without really increasing the temperature of the surrounding air. We hope some of our readers may be induced to attend to this curious phenomenon."

The same fact is incidentally noticed in a publication of more humble pretensions to science than the 'Botanical Magazine.' In the 'Englishwoman's Domestic Magazine,' vol. ii. p. 28, 1854, the heat of the spadix of *Arum maculatum* is stated as a pretty well known fact. In this periodical, which was probably never quoted before in any scientific work, the term *bell-shaped* is printed as synonymous with *umbellate*. The Daisy is pictorially represented with *cauline* lanceolate leaves, like those of an *Orchis*. The author of the botanical papers in this work informs his or her readers that the Strawberry belongs to the Order *Icosandria*, and to the class *Polygynia;* also that *Leontodon Paraxacum* (*Taraxacum*) belongs to the *Composites*, and is of the Natural Order *Asteraceæ;* that Wood Sorrel is a *Polygonaceous* plant (graver authorities have made this mistake), etc. etc. Among all this nonsense there is the fact announced as not unheard of, that the *spadix* of the *Arum* gives out heat at a certain period. Were the learned contributors and rédacteurs of the 'Phytologist' *nodding* when they published the above as a novelty? CAUSTICUS.

[Our correspondent *Causticus* might have quoted, in support of his notice above inserted (viz. that the fact of the development of heat is one of the periodic phenomena of flowers), Henslow's 'Descriptive and Physiological Botany,' Cab. Cyclop. 1837, p. 258: "*Development of Caloric.*—At the time of the flower's expansion a considerable development of heat takes place in certain species, and there is also a rapid formation of carbonic acid. This phenomenon is most strikingly exhibited by some of the *Arum* tribe. The spadix of the common *Arum* (*A. maculatum*) attains a temperature of 47¾° F. above that of the atmosphere, and the *A. cordifolium*, in the Mauritius, has been observed to attain a temperature of 44° 49′ R., or 142¼° F., that of the surrounding air being at 19° R., or 74¾° F." In Jussieu's 'Elements of Botany,' Wilson's translation, there is a more detailed and probably more accurate account of the liberation of heat by plants, to which those interested in the fact may refer. The passage on this point is at p. 484.]

MALVA MOSCHATA.

On the hills of Clent this is by far the commonest of all the Mallows. It is as abundant on the hills, at an altitude of from 600 to 900 feet, as the Foxglove and the Figwort, only it does not grow in patches where the Furze has been burnt, but along the banks and hedges. There is a variety in this portion of Worcestershire with the stem-leaves rounded, reniform, serrated or crenated and crisp, exactly like the root-leaves. Several examples occurred without any deeply-divided stem-leaves, and many with stem-leaves of both sorts, viz. the rounded and lobed and the deeply-divided, with pinnatifid lobes. The common Mallow, *M. sylvestris*, was not common here, and I believe the round-leaved dwarf Mallow, *M. rotundifolia*, was scarce. A. I.

NASTURTIUM OFFICINALE.

This plant appears to be a rare one in the Clent Flora. Several plantations of it were observed in parts of Clent, and an enclosure of it near the Lickey hills. In a small brook descending from the hills between them and Clent a fine colony of this popular esculent was observed. A supply was obtained from this place. Here the water was not mantled with Cresses, but it was literally stuffed full of them. This was the only spot within a circuit of probably sixty or eighty miles where a single plant of Cress was observable; yet water is far from being scarce in these parts. A. I.

ANACHARIS ALSINASTRUM.

With respect to the waters with which I am acquainted, my impression is still the same as when I penned the statement at p. 361, vol. i. N. S. Some of our waters are sluggish enough: the canal is nearly a dead level between locks, the only current being when the gates are opened to admit of the passage of boats, which is not very frequently. The Avon is a very slow, and often muddy, river, much obstructed by mills. Will Mr. Marshall have the kindness to give the height of the water in the few ditches of the Isle of Ely before the plant got into them and after; whether there are any mud banks forming or formed, any alteration of sluices, or other alteration since they were colonized by the *Anacharis*, one height only being given in his pamphlet, and of that only one-half was referable to the new plant. If the two papers be compared (vol. i. p. 361, and vol. ii. p. 194), it will be seen there is little difference between Mr. M. and myself, except in priority of suggestion. I have seen, but have not a reference to the source, a paragraph to the effect that swans had eradicated the *Anacharis* in one part of the Whiteadder. Why does not the Duke of Sutherland put some on the lake at Trentham, and try the effect? W. C.

LAMIUM AMPLEXICAULE.

It has already been noticed that the early flowers of the above plant do not expand their corollas, although the fruit (carpels) appears to be perfect. Apparently perfect capsules have also been frequently observed on the root-shoots of *Viola odorata*, and perhaps *V. hirta*. Are not these common, rather than frequent, on the stemless Violets? Has any botanist ever noticed stamens and pistils where the flowers have not been developed, or where, as in the Violets, they probably never existed, except, it may be, in the state of a rudimentary calyx. Dr. Bromfield, in his excellent 'Flora Vectensis,' states that the later flowers of both *V. odorata* and *V. hirta* are often imperfect, though fertile. It would be desirable to notice exactly the parts *present* in these fertile imperfect flowers.

SONCHUS PALUSTRIS.

Sir,—In case no one else has answered your question touching *Sonchus palustris* in the affirmative, I beg leave to say that the plant was found last year by my nephew Mr. Thomas Butler, somewhere in the fens of Norfolk, I believe (I do not recollect the precise locality, nor if I did should I wish to record it), and by him shown to Mr. Babington. The plant may therefore still be reckoned among existing British species.

Kenilworth, September 22. ANNE RUSSELL.

DRABA VERNA, FLOWERING OF.

In 1854 *Draba verna* was observed in full flower on a wall at Teddington, in Middlesex, on the 3rd of January. It must have been in flower as early as December 1853. Some of the *Crucifers* flower all the year if the weather is not severe; the *Shepherd's-purse* and *Cardamine hirsuta* are examples. The Wall Whitlow-wort is not one of these: its usual time of flowering in the south of England is in March, on walls; and in April it whitens sandy or gravelly fields with its myriads of pure white minute flowers. This plant was observed in full flower on the banks of the upper part of Loch Tay, near Finlarig, on the 17th July, 1856. Hence it appears that the range of flowering in this plant is seven months. Note,—The summer of 1856 was not particularly late, but the spring of 1854 was particularly early.

CYCLAMEN HEDERÆFOLIUM.

Can any reader of the 'Phytologist,' or any botanist into whose hands this may come, inform the querist if all the known examples of this plant from Kent and Nottingham, where it is said to be abundant, belong to the true *C. hederæfolium?* Q.

John Barton, Chichester, will be glad to receive any of the following: *Thlaspi alpestre, Ranunculus hirsutus, Fumaria micrantha, F. capreolata, Arenaria ciliata, Geranium phæum, Astragalus Glycyphyllos, Rosa Sabini, R. tomentosa, R. Systyla, Meum athamanticum, Ligusticum scoticum;* offering in exchange, *Ornithogalum pyrenaicum, Scilla autumnalis, Orchis ustulata, Epipactis grandiflora, E. ensifolia, Luzula spicata, Juncus trifidus, Carex rariflora, C. digitata, Agrostis setacea, Gastridium lendigerum.*

MUSTARD.

(Phyt. vol. ii. p. 223.) Diez, in his 'Wörterbuch der Romanischen Sprachen,' says that *mustard* is derived from the Latin *mustum*, "weil es mit Most angemacht wird"—because it is made with must. According to the 'Penny Cyclopædia' (art. *Sinapis*) it is derived from *mustum ardens;* and all the languages descended from the Latin have adopted a term derived apparently from this source:—French, *moutarde;* Italian and Portuguese, *mostarda;* Spanish, *mostaza.* When and where was it the custom to mix mustard with must? and was *mustum ardens* ever a term in use, or is it merely an invented etymology? K.

WILD CHERRIES.

A correspondent asks the following question:—What is the tree which grows abundantly in the west parts of Buckinghamshire [what parts?], from which large quantities of small black cherries used to be brought to market in their season in baskets covered with *Pteris aquilina?* There is a Cherry north of Ashey Downs, Isle of Wight, called the Merry, and a feast is held annually near Sandown, called the Cherry feast. Is there any Wild Cherry, of a red colour, fit to eat? S. B.

What kind of chalk, *lower*, middle, or upper, crops out on the hills in Berkshire above Streatley? There the *Anemone Pulsatilla* grows plentifully. See 'Phytologist,' ii. p. 243, Oct. 1857.

Communications have been received from

Benjamin Carrington, M.D.; J. E. S.; S. B. (two communications); J. B.; M. F. Fowler; John Lloyd; F. B. W.; G. E. S.; J. P.; John E. Sowerby; Charles Howie; M. W.; Isabella Gifford; Thomas Moore, F.L.S.; John Barton; F. B. W.

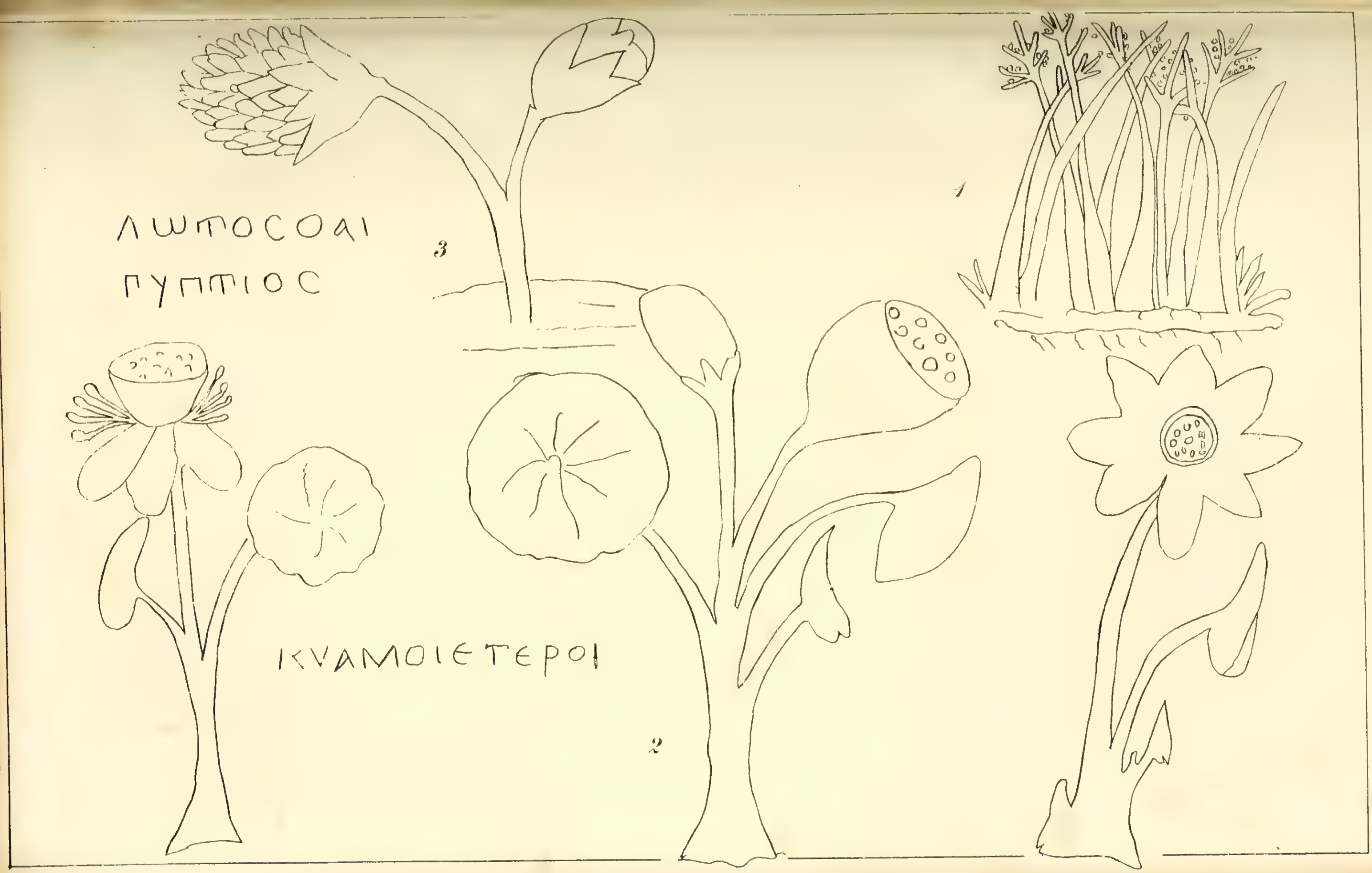
BOOKS RECEIVED FOR REVIEW.

Moore's Handbook of British Ferns; Third Edition.
Sowerby's British Grasses; Part the First.
Natural History Review, for October.

ERRATA IN OCTOBER NUMBER.

Page 243, ninth line from top, *for* but two, *read* all but two; also, page 255, ninth line from top, *for* in Henfield, *read* near Henfield.

List of Communications, *for* Cowler, *read* Fowler.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BOTANY OF BRAEMAR.

Notes on the Flora of Braemar, Aberdeenshire; By J. Barton.

The district which I propose to include in the following sketch, is one which Nature has defined by such marked geographical features, as to present unusual facilities for obtaining a correct estimate of its productiveness in the various branches of natural history. Within a circuit of a few miles, and the compass of an ordinary day's walk, there will be found enough, and more than enough, to occupy the attention of every naturalist, be he botanist, geologist, mineralogist, entomologist, ornithologist, or anything else; and to the mere lover of nature in all its ever-varying beauties, few districts could be found in the length and breadth of the British Isles to afford more entire pleasure than the lovely scenery of Braemar. Bounded on the north by the lofty range of granite mountains known by the various names of the Cairngorm, Ben-na-muic-dhui, or Mona-ma, ranges, from whose summits the snow is rarely known to disappear altogether, and on the south by another range of the Grampians, of scarcely less elevation, among which Lochnagar reigns supreme as the loftiest and noblest; and watered as it is by the countless streams which descend into the Dee,—at this early stage of its course little more than a shallow trout-stream,—the district of Braemar combines perhaps a greater variety of scenery than any other in the British Isles of equal extent. It would be difficult to conceive a greater contrast than is exhibited here as we pass from the densely-wooded, and in some parts cultivated, valley of the Dee, to the vast expanse of mountain and moor beyond. In the one, fantastically-shaped crags of rock jut out at intervals from the dense masses of larch and fir or feathery birch which clothe the mountain side, often with some tempest-shattered and venerable pine of the forest rearing its lofty crest above all the rest—the glossy dark-green hue of its branches contrasting most strikingly with the grey rock into which it has so firmly rooted itself; while, far below in the valley, the dark waters of the Dee, broken here and there into silvery whiteness by large boulders of rock, wind their swift course to the ocean, performing, in the short space of 68 miles, a descent of no less than 1300 feet.* On the other hand, as we emerge from the belt of foliage upon the mountain-side, we have presented to our view one unvarying, and yet far from monotonous, prospect:—as far as the eye can reach extends one boundless sea of heathery moor; little patches of greenest verdure, or dark masses of rock, occasionally relieving the prevailing hue of brown. At intervals of one or two miles, the gently undulating surface of moor is deeply indented by narrow valleys or glens, through which a rushing torrent makes its way, and often, as we trace the stream up to its course, we come at last upon a dark still loch, or mountain tarn, immured in its rocky basin, with black rugged precipices shelving down abruptly to the water's edge; each rocky ledge and crevice being a rich storehouse of delicate alpine plants.

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* The height of the river Dee at Banchory (15 miles) is computed to be 172 feet;

But turning from these general geographical features, and regarding the country more in a geological point of view, we shall find much to interest; and though this branch of science cannot be said to come strictly within the limits of a botanical journal, I trust I shall be excused for alluding briefly to the geological character of the district in question. By far the greater part of the district of Braemar consists entirely of granite; all the loftier mountains of the Grampian range are composed of this rock, as Ben-na-muic-dhui, Cairngorm, Ben-na-buird, Lochnagar, etc., while near Balmoral, and as far down as Ballater, the granite stretches completely across the valley of the Dee. Above the Castleton of Braemar however it recedes to a distance of three miles from the bed of the river on each side, and is not met with at a lower elevation than 2500–3000 feet, all the lower part of the valley being composed of mica-slate or quartz rock. In reference to this part of the district however, I will quote a few extracts from Professor M'Gillivray's work on the Natural History of Deeside, a book to which I am under the greatest obligations, and from which I derived much assistance in my various expeditions. Unfortunately the book in question is not accessible to the public generally, as it is merely printed for private circulation by order of His Royal Highness the Prince Consort, and but a very few copies of it have been printed. The Professor resided for several months at Castleton of Braemar, and thus enjoyed especial advantages for studying the natural history of the neighbouring

at Ballater (42 miles), 780 feet; at Castleton of Braemar (60 miles), 1070 feet; and at the Bridge of Dee (68 miles), 1294 feet.

district; hence his observations are more than usually valuable. He says: "All along the valley of the Dee, and on its southern declivities, are masses of a stratified rock composed of quartz and mica, the former granular but crystalline, the latter in scales, disposed in films or laminæ. Portions of this deposit present the characters of quartz rock, but are never, to the thickness of a foot, destitute of laminæ and mica. When, as often happens, the alternate layers are very thin, the mica in very small scales, and the quartz intermixed with mica, the rock resembles some varieties of gneiss; but if any felspar at all occurs in it, the quantity is extremely small. The whole mass is thus mica slate. From the sources of the Geaullie eastward to Glen Cluny, the whole space is of this mica slate, presenting the varieties of character already mentioned, often intersected with quartz veins, and presenting irregular beds of crystalline limestone. The same formation also extends beyond Glen Cluny into Glen Callater, of which it forms all the west side. Just to the west of Castleton, is a large hill, called Morrone, the base of which is composed of quartzose mica slate, in thin and very regular layers, generally almost horizontal. This rock continues as far up as the Linn of Dee, nearly seven miles, but changes its character there, and becomes decidedly micaceous. No true granite veins have ever been met with by me in this tract, and only one of greenstone, on Glen Ey. There can however be little doubt that the whole geological basis of the tract is granite, which forms the surface of all the higher and many of the lower hills; and that there is superimposed upon it a discontinuous mass of primary slaty rock, traversed by dykes of porphyry.

To the east of Castleton of Braemar, a small hill, elevated about 300 feet above the Dee, and named Craig Choinnach (the Crag of Kenneth, "the King,"), forms the extremity of the range which bounds Glen Cluny on the east. In ascending it from the village, you pass through a belt of wood, beyond which the hill-side is covered with a vast quantity of *Arbutus Uva-ursi*.* To the eastward is another rocky prominence of less elevation, but presenting to the Dee a perpendicular rock of great beauty, named, not inappropriately I think, the Lion's Face, but known to the older natives as Craig a' mhurdair, "the Murderer's Crag."

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* About halfway up this crag, *Polystichum Lonchitis* and *Asplenium viride* grow in the greatest profusion, with beautifully divided forms of *Cystopteris fragilis*.

Directly opposite is Invercauld House (J. Farquharson, Esq.), beautifully situated on a green haugh of considerable extent, with the Dee winding in front, and extensive woods covering the hill-sides beyond. Between the two prominences mentioned, there is a deep and narrow hollow, cumbered with blocks and long heather, and full of trees. It is named the "Duclash dubh-clais," *i.e.* the Black Furrow, and is said to be a great resort of wounded deer. The rocks there are of slaty quartz, like those of the so-called Lion's Face. About three hundred paces eastward from the latter, the rock is granite. In this way the mica-slate and granite are intermixed along the rocky front presented to the Dee, but the hills ascending from thence towards the western ridge coming from Lochnagar, are mostly of granite. Further eastward still, are ranges of high rocks, called Craig Cluny; and the river continues to be overlooked by rough and elevated ground till we enter the "Bealloch-bhui Forest." It may perhaps be as well to record here such interesting plants as are to be found on the rocks just described, as also along the lower ridge of Morrone, west of Castleton.

Vicia sylvatica: rocks at base of Morrone. *Rubus saxatilis:* Craig Choinnach. **Potentilla alpestris:* Lion's Face; base of Morrone. *Arbutus Uva-ursi:* Craig Choinnach; Lion's Face. *Pyrola secunda:* Craig Choinnach; base of Morrone: abundant. *P. media:* Craig Choinnach. *Empetrum nigrum:* common on all the rocks. *Polystichum Lonchitis:* Craig Choinnach; rocks at base of Morrone: very abundant. *Asplenium viride:* in same places as the last, and more widely distributed. *Botrychium Lunaria:* among *Alchemilla alpina,* on rocks at base of Morrone. *Lycopodium annotinum:* in several places on the moors.

N.B. In this and the following lists, those plants marked with a * are recorded by M'Gillivray or other botanists, but have not been confirmed by my own observations.

PERTH FLORA.

By W. LAUDER LINDSAY, M.D.

The "Statistical Account of Scotland" assigns to this district, and especially to particular parishes thereof, such as Methven and Redgerton, a "rich and rare" Flora. But so far as my own limited observations go, there is some discrepancy between the list of plants there given and the plants now actually found in the habitats indicated. It seems probable that some of the varieties have disappeared from their stations since the date of the great national work alluded to; and in a few cases this may be due to the improved agriculture, especially draining and thinning of woods, in others to the circle of distribution of the plants having been originally very limited. I have searched in vain for *Botrychium Lunaria* on the North Inch, and for *Ceterach officinarum* on the hill of Kinnoull and in the glens of Balthayoch and Pitrodie; and other rarities have equally eluded my search. Again, certain species are doubtfully indigenous, while others are certainly introduced or have escaped from gardens. These remarks apply for example to *Villarsia nymphæoides*, which was sent by a most zealous, enterprising, and accurate botanist, Mr. Gorrie of Annat, to Mr. Miller at Dupplin, in 1800, and is now naturalized in Dupplin loch, covering an acre thereof; *Solidago lanceolata*, a North American species, which is a common weed in many parts of the district; *Convallaria majalis*, which is plentiful in Methven woods; *Fagopyrum esculentum*, which has probably been introduced for the feeding of pheasants; *Saxifraga aizoides*, whose seeds have probably been washed from the Dunkeld highlands, by the Tay or its tributaries; *Hesperis matronalis*; which occurs sparingly in the Carse of Gowrie; and *Carduus Marianus*.

I have not found many absolutely rare plants; but I have been struck with the local abundance of certain plants which in other parts of the country, for instance round Edinburgh, are somewhat rare, or at least are not commonly with met with. For example, *Mimulus luteus* is very abundant in the marshes on the Tay immediately below Barnhill Toll, where also *Senecio aquaticus*, *Scirpus lacustris* and *triqueter*, and other interesting marsh plants occur. *Dipsacus sylvestris* grows in great profusion and to a great size and strength on the rocky talus immediately below the precipice of Kinnoull, where *Reseda Luteola* and *Lactuca virosa* are also common. The latter grows in rank luxuriance, and exhibits the largest specimens I ever saw. *Astragalus glycyphyllus* and *Vicia sylvatica* I have met with on the banks of the Almond, a short way above its junction with the Tay. *Campanula glomerata* occurs on the banks of the Tay above the North

Inch. *Cryptogramma crispa* is abundant on Birnam Hill, among rocky debris. *Sedum Telephium* is very plentiful on all the road-sides in the neighbourhood of Kinnoull and Bernhill, where also *Matricaria Parthenium, Solidago Virgaurea, Achillea Ptarmica,* and *Berberis vulgaris* are common.

The most interesting plants of the district are probably *Scheuchzeria palustris, Moneses grandiflora, Teucrium Chamædrys,* and *Turritis glabra,* which are described as natives of the parishes of Methven and Redgerton; but the following also are noteworthy:—in the Methven district, including the woods of Methven and Lynedoch, Glenalmond, and the banks of the Almond, are stated to occur *Corallorhiza innata, Epipactis grandiflora, ensifolia,* and *latifolia, Listera Nidus-avis, Paris quadrifolia,* and *Erigeron alpinus.* In the Redgerton district—including a portion of the banks of the Tay—occur *Peplis Portula, Nuphar lutea, Nymphæa alba, Thalictrum minus, Hypericum humifusum, hirsutum, pulchrum, quadrangulum, dubium, Cichorium Intybus, Bidens tripartita, Cnicus eriophorus* and *heterophyllus, Trientalis europæa, Adoxa moschatellina, Chelidonium majus, Habenaria viridis* and *bifolia, Listera ovata, Genista anglica,* and many others of minor interest. In the Carse district, including the Tay marshes, the alluvial plain of the Carse proper and the "Braes of the Carse," or the southern declivities of the Sidlaws, are to be found *Galium saccharatum, Cynoglossum sylvaticum, Calamintha Acinos,* along with *Geranium lucidum* and *Anthemis arvensis,* a weed at Annat gardens; *Poterium Sanguisorba* with *Pyrola rotundifolia* and *media,* at or near Annat park or cottage; *Lotus corniculatus,* var. *tenuifolia,* which has been once found in the wood at Annat park; *Centaurea Scabiosa, Stachys arvensis* and *palustris, Galeopsis Ladanum, Ranunculus hirsutus, Chrysosplenium alternifolium, Leonurus Cardiaca, Scrophularia vernalis, Typha angustifolia,* and *Dianthus Armeria.* For the stations of many of these I am indebted to a list supplied me some years ago by Mr. Gorrie of Annat Cottage, who, from long residence, combined with high scientific attainments, is thoroughly conversant with the botany of the Carse of Gowrie. In the Kinnoull and Perth district, including the hills of Kinnoull, Moncrieff, and Craigie, and the Glen of Balthayoch, occur *Sagina ciliata, Lychnis Viscaria, Geranium columbinum, Sedum anglicum* and *album, Potentilla argentea* and *reptans.* And lastly, in the Strathearn district, including

Dupplin and Glenfarg, are found, *Dentaria bulbifera*, *Doronicum Pardalianches* and *plantagineum*, *Rumex alpinus*, *Mentha viridis* and *piperita*, and *Lychnis Viscaria*.

ANCIENT BOTANY.

(*With a Plate.*)

Sir,—In the June number of the 'Phytologist' reference was made to a manuscript copy of Dioscorides, supposed to be of the twelfth century, formerly in the Rinuccini Library at Florence, and which was sold in April last, by Messrs. Sotheby, for £590. The large sum paid for it may be accounted for when the extreme rarity of manuscripts of this author is considered; moreover the present copy is supposed to be the finest extant, save the one at Vienna, of the fourth century, from which, judging from the engravings now at Oxford, the figures seem to have been directly or indirectly copied. There are however in the Rinuccini MSS. a large number of figures, of which no engravings occur among those brought from Vienna by Dr. Sibthorp, and which are of considerable interest, such as the *Papyrus* (fig. 1), the *Nelumbium*, under the title *κυαμοι ἑτεροι* (fig. 2), the Egyptian Lotus (fig. 3), from which I send you tracings. The flowers of the last-mentioned are coloured pink, and represented as standing up above the surface of the water.

Under the name λωτος a tolerably good representation of *Celtis australis* is given; but what plant is meant which is figured as λωτος *ουδε τριφυλλον*, etc., is more than I could determine. *Ruscus aculeatus* and *Laurus nobilis* are both figured at different places under the same name, *δαφνη*, while by *ῥοδοδαφνη* some kind of *Epilobium* seems to have been intended. A tolerably good representation of *Narcissus poeticus* is given as *ναρκισσος*. The Ash is figured under the name *μελια*, the Pear under that of *μηλια*; another kind of Pear is represented and called *μελιμηλη* (Honey Pear?). Will this similarity in the Greek names of the Ash and of the Pear throw any light upon Virgil's assertion—

> "Ornusque incanuit albo (? White
> Flore pyri"?

Though the figures in many instances are very rude, yet in general a very favourable contrast in this respect may be drawn between the more ancient manuscripts and those of the fourteenth century and later. In the manuscripts of this latter period the artist seems to have drawn from imagination alone; and as his imagination seems to have been deeply tinctured with superstition, the result has often been the production of a drawing in which it would puzzle one's ingenuity to discover any resemblance to a plant. MAXWELL T. MASTERS.

SCOTTISH BOTANY.

Notes of an Excursion to Cleish Castle, etc. By the Rev. HUGH MACMILLAN, F.B.S.E., etc.

With the same companion who botanized with me on the Saline Hills of Clackmannan, I set out to explore the botanical riches in the neighbourhood of Cleish Castle. On our way we observed in the woods that bordered the path an immense quantity of the *Paris quadrifolia*, growing most luxuriantly among tufted ferns. Owing to the richness of the soil, formed by the decomposition of the vegetation and the abundance of shade and moisture, as indicated by the universal diffusion of *Equisetum sylvaticum* throughout the woods, it grows to a very large size, and is almost as often furnished with five as with four leaves, thus rendering its specific name a misnomer. Though somewhat rare in the southern, and found only in a few isolated localities in the northern districts, it appears to be very common in this neighbourhood, occurring in almost all the woods on the slopes of the Cleish hills, and on the banks of the Black Devon. On the dry pasture-lands above the road, we observed here and there the elegant *Habenaria albida;* and in marshy spots, among Rushes and Carices, the richly-scented *H. chlorantha* in considerable abundance. Whether specifically different or not, I have always been able to distinguish the latter of these two plants from the former, with which botanists often confound it, by its larger size, its greenish-yellow flowers, by the broader and more connivent segments of the perianth, and its widely-diverging anther-lobes. Nothing of any botanical interest further rewarded our search until we reached Cleish, with the exception of a few specimens of *Ranunculus Lingua, Melica nutans,* and *Equisetum Drummondii,* which, though rare elsewhere, appear to be unusually abundant in the counties of Clackmannan and Kinross. This sequestered little village, seldom visited except when some chance passenger, diverging from the high-road, wanders to the spot, is beautifully embosomed among plantations at the base of a range of green but moorish hills, and looks down, over sylvan slopes and variegated fields, upon the fertile vale of Kinross. Although in itself possessing no claims to the notice of the visitor beyond those presented by almost every solitary country village, it is yet invested with considerable interest on account of the associations connected with it. It was there that Mary Lundie Duncan spent her peaceful and eminently Christian life,—diffused, as the wife of the parish minister, her own heavenly happiness among the primitive inhabitants, and furnished those simple incidents which have been woven into a biography as affecting and interesting as any that have ever issued from the religious press; and it was there, in the little school-house near the farmstead of Gairneybridge, that the amiable and highly-gifted Michael Bruce, the Henry Kirke White of Scotland, like him in his genius and in his early and melancholy death, taught the village-school for several winters while struggling under the pressure of poverty and constitutional disease. Recalling these interesting and affecting associations, which seemed to have left their rich perfume in the place, we entered the grounds of Cleish Castle, which, with a liberality worthy of more general imitation by proprietors, are open to public inspection. The castle itself is a plain, unpretending Gothic structure, with the usual zigzag gables, narrow and irregular windows placed at uncertain intervals in the thick walls, and round projecting turrets ornamenting the corners. It was rebuilt by its present proprietor in the original style, and is now apparently a comfortable residence. It is completely surrounded with woods, composed of various trees, whose huge lichen-covered trunks and magnificent canopies of foliage, carry back the imagination to a remote antiquity. Few or no traditions are connected with it; but it possesses sufficient interest in the eyes of the botanist, in the great number of rare plants that are found in its vicinity, to compensate for the want of every other. One of the labourers employed in cutting the grass around the castle, conducted us, on inquiring where these rare plants might be found, to a perfect wilderness of luxuriant weeds, among which we noticed an immense profusion of the *Symphytum tuberosum,* with its downy leaves and pale-yellow flowers, the corollas of many of which had fallen off. Leaving the elegant calyces behind, and the *Arum maculatum,* called in the neighbourhood *Devil's snuff-box,* contesting the supremacy with Docks and Nettles, but made conspicuous by its smooth spotted leaves and faded spathes enclosing the green fruit; my companion gathered, in the neighbourhood of this spot, several very fine specimens of the *Doronicum plantagineum* in shady places among the trees. This beautiful and rare Composite plant has been confounded with its congener, the *D. Pardalianches,* even by Smith and Linnæus; but it may be easily distinguished by its leaves being more glabrous, softer, less waved and toothed, by its larger flowers and longer and narrower calyx-scales. It is a doubtful native, being found only near Widdington in Essex, Strathearn in Perthshire, and in the Kinross woods, where it is particularly abundant and very ornamental. We observed some magnificent specimens of the *Valeriana pyrenaica* by the side of a ditch near the entrance to the grounds, some of which were five feet in height, and thickly covered with dark-green leaves, which near the root were unusually large. Near the same spot we found the flaunting yellow flowers of the *Meconopsis cambrica,* a very rare tenant of the Scottish woods, the *Hieracium amplexicaule,* and a few isolated specimens of the beautiful *Scrophularia verna,* the British *Calceolaria;* while the *Actæa spicata* sent up in the shadier places its spikes of foamy flowers, which were hardly visible amid the luxuriant grass. The old, crumbling, moss-grown wall which surrounded the ancient garden was thickly draperied with the pendent ivy-shaped leaves and tender little lilac flowers of the *Linaria Cymbalaria,* a great favourite with painter and poet; and in the same situation the very rare *Turritis glabra* is said to grow, and has actually been gathered by Professor Balfour's party some years ago, during a class excursion to the spot; but although we searched diligently for it, we were doomed to disappointment, and were obliged to console ourselves somewhat after the manner of the fox in the fable, with the belief that it had been entirely extirpated. From the character of most of those plants I have enumerated, as well as from the situation in which they occur, the conclusion is almost inevitable, that they are the floral remains of the ancient garden,—the descendants of those progenitors which were cultivated and retained within limits which they were intended to adorn, by fair hands now long mouldering in the tomb; but this consideration did not detract from the interest they possessed in our eyes, for the situations in which we found them were sufficiently wild, and the contest they maintained with myriads of other autochthonous plants, which strove to obtain exclusive possession of the ground, was certainly worthy of admiration. Of Cryptogamic plants we observed a considerable variety on the trees and walls; but we gathered only one rare Moss, the *Neckera pumila,* which formed wide, silky patches among the *Jungermanniæ* on the trunks of the Beech-trees. I found it in considerable abundance a few months previously in the woods around New Abbey in Kircudbrightshire. It is pretty common about Inverary, though unknown, as far as I am aware, in every other district in Scotland. But the chief rarity of the place, the plant upon the discovery of which we principally congratulated ourselves, was the very curious little Tree-Alga, the *Chroolepus Arnottii,* very appropriately named after Professor Walker Arnott of Glasgow, who, besides being its first discoverer, is a native of Arlary, in the same county, thus possessing a double title to be called its prototype. We found it in a magnificent avenue of Yews a little above the castle, which, from the slow growth and immense duration of the tree, must have put forth their youthful shoots when the foundation-stone of the old structure was laid, long before Queen Mary was an unhappy prisoner in the neighbouring castle of Lochleven, and whose thick branches, gnarled by the teeth of centuries, and dusky foliage, created a sepulchral gloom even in the sunniest summer noon. A dark exudation flowed out from the broken and furrowed bark of each tree near the root, which soon hardened on exposure to the air; and on this matrix the *Chroolepus* grows. At an early stage of its development it spreads over the surface of the moist bark, in thin, scattered, flaky patches, which present a close resemblance to the common *Mouse-skin Byssus* (*Racodium cellare*), which is so frequent upon old casks and walls in cellars and wine-vaults. In its mature state it is aggregated into more or less rounded tufts, composed of a firm, corky substance, exhibiting, like the *Sphæria deusta,* concentric layers of growth when broken, and sometimes attaining an inch in thickness. It is constantly kept moist by the exudation from the tree; and Professor Arnott is of opinion that its stratified structure internally is owing to the inspissation, at the close of each season, of this sap, which it so freely absorbs. When examined under the microscope it presents a beautiful appearance, consisting of a heap of little purple-brown beaded necklaces, which are slightly branched and exceedingly fragile. The articulations of these beaded filaments are very nearly as broad as they are long, and are marked by contracted joints, which give them a somewhat spherical shape. From its external appearance, place of growth, and microscopic structure, this plant seems to have a closer affinity to the *Fungi* than to the *Algæ;* and I am strongly inclined to think that it would occupy its proper and natural position if placed among the former in the genus *Monilia* or *Torula.* It certainly differs widely in almost every respect from the typical species in the subdivision *Helenisporium* of *Chroolepus.* I have frequently observed a somewhat similar production on the trunks of Fir and Larch trees in the Highlands, forming small, black, flocculose patches on the bark, the filaments of which exhibited under the microscope a moniliform structure. Although placed by Klotzsch in the genus *Racodium,* under the name of *R. pinophila,* it has as true a claim, I think, as the plant under consideration to be considered a species of *Chroolepus.*

I may remark here that a nondescript production occurs very frequently on the knots of Pine-trees, and on the trunks in places where the branches had been broken off, spreading in a continuous black powdery patch over the resinous exudation that has oozed out and hardened by exposure to the air. Suspecting it to be a Lichen from the presence of black apothecia-like shields on some species I had gathered, I sent it to my friend the Rev. Mr. Leighton, the author of the 'Angiocarpous Lichens,' who examined the fructification microscopically, and informed me that it was destitute of asci and contained only a mass of granules or naked sporules. Since then I have satisfied myself that it is the *Lichen atratus* of Hedwig, or the *Patellaria atrata* of Fries. It might easily be confounded at first sight with the *Chroolepus Arnottii,* but the characters I have indicated will sufficiently distinguish it. After we had obtained a sufficient supply of specimens of this very interesting plant, which I believe has been found nowhere else in Britain, although I should think it might occur on Yew-trees in other localities, were a careful search instituted.

We left Cleish Castle, having enjoyed several most delightful walks amid the beautiful grounds. We then followed the road which leads through the village to Kinross, about three miles beyond, where we dined and spent an hour or two by the side of Lochleven, recalling the romantic associations connected with its ruined castle and the illustrious but unfortunate captive once imprisoned within its hoary walls, and admiring the wide curving sweep of the dark-blue waves as they rolled over the surface of the lake and laid the white yellow-eyed blossoms of the Water Ranunculus and the shining transparent leaves of the *Potamogeton lucens* at our feet. The only plants of interest which rewarded our search in this locality were the *Chelidonium majus, Rhinanthus major, Lepidium campestre, Ornithopus perpusillus, Tragopogon pratensis, Potamogeton heterophyllus, Pilularia globulifera, Litorella lacustris,* and *Solanum Dulcamara.* We arrived at home after a very pleasant though somewhat lengthened walk, quite exhausted and satiated with the varied beauties of the scenes amid which we had spent the day, but yet prepared to enjoy the glorious sunset drenching the whole sky with its oriental splendour, and converting the Ochil Hills into a pile of purple clouds, whose ethereal uniformity appeared transparent and transvious, which met our admiring gaze when we emerged from the dark obscurity of the Meadowhead Woods, through which our previous path had winded, and stood on the elevated ground beside our home. Next morning I left for Edinburgh; and here naturally ends my reminiscences of districts which, for their beautiful and romantic scenery and their interesting geological and botanical features, are well worthy of a visit from every naturalist and lover of nature, and amid which I have enjoyed several of the most delightful excursions I have ever undertaken,—excursions I shall not soon or easily forget!

FIFESHIRE LYCOPODIA AND EQUISETA.

By CHARLES HOWIE.

Selaginella spinosa, Palisot de Beauvois. Grows in moist places on St. Andrew's and Largo Links, Tent's Muirs, etc.; it assumes a more strong, lax, and erect habit on high, sheltered elevations, as on the West Lommonds.

Lycopodium Selago, L. Found sparingly on Tent's Muirs and by the east seacoast; common on Lucklaw Hill, Drumcarrow Crag, King's Muir, Lommonds, etc.

Lycopodium inundatum, L. We have only found it on the Tent's Muirs, where turf had been lifted, in company with Alex. O. Black.

Lycopodium alpinum, L. In fruit, on the West Lommonds and Lucklaw Hill.

Lycopodium clavatum, L. In fruit; abundant on Lucklaw Hill and over the county; common on unbroken heath.

Equisetum Telmateia, Ehrhart. Growing by the seacoast at Caplic, a mile east of Anstruther, where the *Helleborus fœtidus* and other varieties once grew; this *Equisetum* still waves there in derision at draining and farmers.

Equisetum umbrosum, Willdenow. North side of Lucklaw Hill and Lommonds.

Equisetum arvense, L. Well known as a weed difficult to eradicate.

Equisetum sylvaticum, L. Of common occurrence; abundant in several dens.

Equisetum limosum, L. In pools and wet ditches; common.

Equisetum palustre, L. On Tent's Muirs, abundant; distributed over marshes and ditches, with marked variations.—The permanency of these variations we have had no means of determining.

Equisetum hyemale, L. Growing in considerable quantity in an open space on the south bank of Sherely Den, below the Anstruther road; it is also located near the mill in Craighall Den, by Ceres.

Equisetum variegatum, Schleich. Growing by the side of a marshy pool on Largo Links, on moist ground.—The decumbent form *Arenaria* is also found under similar circumstances; it is met with on the Tent's Muirs and St. Andrew's Links.

THIRSK NATURAL HISTORY SOCIETY.

On Monday, November 2nd, was held the fifth Annual Meeting of this Society, Mr. J. G. Baker in the chair. The officers for the past year brought in their Reports, were thanked for their services, and re-elected as follows:—President, Mr. J. G. Baker; Secretary, Mr. R. D. Carter; Librarian, Mr. J. J. Packer.

Mr. J. G. Baker said, that by reason of the sale of its herbaria and other causes, the exchanges of British plants which had been carried on for so many years with eminent utility by the London Botanical Society were at present suspended, and that in consequence there was now no convenient centre to which contributors might send their duplicates to receive desiderata in return. Whilst this position of affairs continued, he suggested that the Thirsk Natural History Society might profitably lend its endeavours to fill up the vacancy; and he volunteered, if this idea met with the approbation of the members, to undertake the management of the distribution of flowering plants and Ferns. Mr. J. H. Davies expressed his approbation of the idea, and a wish that Mosses should be included in the scheme. After some discussion of their details, the following resolutions, which were proposed by Mr. G. R. Baker, and seconded by Mr. J. Rhodes, were adopted unanimously:—

"I. That pending the abeyance of the Botanical Society of London, this Society establish a Club for the interchange of dried specimens of British Plants, especially of the higher orders, the management of which shall be vested in two Curators and the Secretary.

"II. That in order to further the carrying into effect of the previous resolution, the Society agree to admit Corresponding or Non-Proprietary Members at the ordinary rate of subscription, viz. six shillings per annum, remitting in their favour the customary entrance-fee.

"III. That to such of its Corresponding or Proprietary Members as are engaged in the formation of their herbaria of flowering plants and Ferns, the Society will undertake to furnish a selection of desiderata in return for a supply of specimens of such species as it requires; and that to such of them as need assistance in naming their specimens, and to such as wish to exchange Mosses, it will be prepared to lend such help as lies in its power."

Mr. J. G. Baker was appointed Curator for flowering plants and Ferns, and Mr. J. H. Davies for Mosses.

Mr. H. Ibbotson exhibited specimens of *Leucobryum glaucum* in fruit, and *Dicranodontium longirostre*, collected by Spruce in the Pyrenees.

The managers of the Club have issued the following circular:—

"THIRSK NATURAL HISTORY SOCIETY.—BOTANICAL EXCHANGE CLUB.

"*Information and Instruction to Contributors.*

"I. It is required that the specimens contributed shall have been dried carefully, and that without exceeding the size of half a sheet of demy they furnish as complete illustrations of the species they represent as circumstances will admit.

"II. To each specimen sent for exchange must be fastened a written or printed label, furnishing the following items of information, viz. 1st, the number and name of the plant, with the authority for the latter, as given in the latest edition of the London Catalogue, or, if a Moss, in the 'Bryologia Britannica;' 2nd, the locality, county, and date; 3rd, the name of the collector and contributor.

"III. In furnishing lists of desiderata, it is requested that the London Catalogue and 'Bryologia Britannica' be followed as standards of nomenclature and arrangement.

"IV. It is proposed to send out the return packets as early in the year as practicable, beginning with 1858; and to distribute each spring a report of the operations of the Club and a list of its desiderata.

JOHN G. BAKER, JOHN H. DAVIES, *Curators.*
RICHARD D. CARTER, *Secretary.*"

Reviews.

The Handbook of British Ferns. By THOMAS MOORE, F.L.S., F.H.S., etc. Third Edition. London: Groombridge and Sons; W. Pamplin.

The literature of Ferns is in a palmy state. Judging by the distinct publications on this branch of botanical science, it surpasses that of all the other branches together. There are now, thanks be to the authors and the public both, at least a score of works on the British Ferns, and all of them enjoying what may be called triumphant success. Among works of science their celebrity is unprecedented.

One of the most useful of these, and they are all good, is the work which we have now the pleasure of announcing. We remember warmly commending the second edition; the third however far exceeds its predecessor, both in beauty and utility. The additional matter in this new edition occupies upwards of sixty pages. Several changes have been made in the classification; for example, *Adiantum, Cystopteris, Woodsia, Gymnogramma,* and

Trichomanes, are made the representatives of tribes. *Hymenophylleæ* have been attached to *Trichomaneæ*. *Cystopteris* and *Woodsia* are now far separated from *Aspidieæ*, with which they were joined in the former edition. These are the most important alterations in the arrangement. The conspectus of the British genera and species is very much extended: it now occupies twenty pages, and the distinctive characters appear to be well worked out. In the second edition only three varieties of the common Polypody (*P. vulgare*) are noticed; in this one there are sixteen, and seven of them are illustrated by large and characteristic pinnæ (lobes) of their respective fronds. The description and drawing of *P. alpestre*, var. *flexile*, is another addition. *Polystichum angulare* is illustrated by several figures of recently-observed varieties: some of these are very elegant. The crested variety appears among its greatly diversified curious forms. Several new figures illustrative of some of the most interesting varieties of *Scolopendrium* are given; among these *S. vulgare laceratum* is one of the handsomest. The varieties of this *protean* Fern now amount to fifty, and probably there may be fifty more to be discovered: some of them, viz. *in futuro, non in præsenti*, are probably to be formed. Hence it may be inferred that the varieties of some species are infinite. *Blechnum boreale* is also figured with tasselled and multifid, and even branching lobes, somewhat like a *Pteris*. We observe that Mr. Moore does not adopt the emendation in the orthography of *Spicant* proposed by our Chiselhurst correspondent, and printed according to his directions *spicans* in the 'Phytologist,' vol. i. N.S. p. 301. The writer of this notice examined several editions of Linnæus's works from 1762 downwards, but saw no vacillation in the form of this puzzling specific term. Linnæus certainly either wrote it, or suffered it to be both written and printed, *Spicant*. Had it been only a typographical error, some one of Linnæus's editors would have corrected it: he would have done it himself; for several editions of his works were printed during his life, and, it is to be believed, under his superintendence.

In *Athyrium* the var. *rhæticum*, which was a species in the second edition, is now reduced to its former station under *A. Filix-fœmina*. Mr. Moore, though he looks sharply after varieties, does not insist upon every one of them taking rank as species. This is a consolation to those who think that the division of natural things, like the division of labour, may be carried too far; and that, among the multiplicity of classes, alliances, groups, orders, suborders, tribes, subtribes, genera, species, and varieties, almost all founded on minute, wiredrawn distinctions, a botanist of the tyrocinian class would no more be able to thread his way, than a London or Birmingham artisan would succeed in finding his way through the backwoods of Canada, or contrive to make the timber and the ground where it grows minister to his support.

The Natural History Review for October. London: Williams and Norgate. Dublin: Hodges, Smith, and Co.

This number, though a double one, contains but little of interest to botanists. The zoologists will be pleased with it. Among the reviews there is one on marine and freshwater *Aquaria*, by various authors, viz. 'Popular Account of the Aquarium,' by G. B. Sowerby; 'The Common Objects of the Sea,' by the Rev. J. G. Wood, M.A.; 'Ocean Gardens,' by H. Noel Humphreys, and 'River Gardens,' by the same author. This review contains certain stinging observations on the folly of some people who want to become teachers before being scholars, and to instruct mankind before they have learned what to teach and how to teach it, to deck themselves in borrowed plumes like the jackdaw, and then strut about the yard the derision and sport of all the fowls. Much good may this review do those who most need it! One of these authors predicts that the "day shall arrive when we shall see the living behemoth" (we thought that the behemoths were all dead and changed into stone, myriads of ages ago), "the Titan of the deep, rolling majestic in waves of his native element, perhaps pursued by his cruel enemy the sword-fish" (a slight symptom of the *bathos* here), "or harried by a shoal of herrings, graphically exemplifying to a London crowd the origin of Yarmouth bloaters; or we may see the dreaded shark float round and round the vast glass prison, and the shark-hunter of the South Seas may be imported to exhibit his skill in a bloodless combat" (nice and cheering drawing-room pets), etc. etc. "We have had, and have still, our crystal palaces covering their acres and filled with objects of art from all quarters of the globe; it is not impossible therefore that we may have crystal-walled seas, in which aquatic menageries will form the last new object of fashion and wonderment." The belt of gardens round London formed with the purpose of exhibiting all the climates and all the productions of the earth was as nothing to the gigantic scheme of glass-walled seas, with space enough for animals rivalling in size the saurians of old, with shoals of modern herrings and haddocks to harry them. The balance, nicely adjusted as it is, between animal and vegetable life, is a wonderful, instructive, and interesting example of the wisdom and goodness of the Creator, but its admirers and illustrators are in some risk of becoming ridiculous.

On the Structure of LECIDEA LUGUBRIS, Sommf. *By* WILLIAM L. LINDSAY, M.D., Perth. (Reprinted from the 'Journal of Microscopical Science.')

Botanists of the older and conservative school will be pleased to learn that Dr. Lindsay, one of our most indefatigable, accurate, and successful Lichenologists, is no admirer of the splitting and subdividing principle, which is so characteristic of modern practice in the natural sciences.

The discoverer of this Lichen, *new* to Britain, informs us that he retains the ancient name, *L. lugubris,* though not so euphonious as *Schæreria lugubris,* a name conferred on it by Körber, in honour of Schærer, the illustrious Lichenologist of Switzerland, and that he does this "as a practical protest against the fastidiously elaborate subdivision of genera and species; this is probably the result of a mono-ideaism" (will some learned reader tell us what this is?), "I shall [will] not say a morbid one, but one which is apt to lead to a repulsively minute and difficult classification." Many of our readers will agree with Dr. Lindsay that classifications are sometimes needlessly as well as repulsively minute, and the terms whereby these are represented are not seldom difficult and obscure. The European habitats of this newly-discovered treasure are "primitive rocks on high mountains, above 3000 feet of elevation." Two stations are given in the Riesengebirge (Germany), and the more general one, "subalpine rocks in Sweden and other parts of Northern Europe." The place in which the Doctor found it is one which cannot be called alpine, viz. "on a low ground—a moor immediately to the west of the

Free Church School-house of Braemar, within half a mile of the village, and to the south of the high-road leading to the Linn of Dee."

"It grew sparingly on some weather-worn gneissic boulders. The principal rocks in the neighbourhood are gneiss, granite, and mica-slate. I did not meet with it in all the neighbouring mountains, which include some of the highest in Scotland (Ben Mac-Dhui 4296 feet, Brae-reach 4280, Cairntoul 4230, Cairngorum 4050. It is however a small Lichen, and, not expecting such a rarity, I did not specially look for it. I have not hitherto found it in other parts of Scotland, notwithstanding that I have visited most of its highest mountains, in the pursuit of Lichenological studies (the Cairngorum range, Ben Nevis, Ben Lawers, the Coolen range, Skye, etc.). It should in future be carefully looked for in such localities as Braemar." There is a beautiful illustration of the Lichen accompanying the Paper, for which we offer Dr. Lindsay our hearty acknowledgments.

BOTANICAL NOTES, NOTICES, AND QUERIES.

THE INDIAN MATERIA MEDICA.

The Government of India pays upwards of £40,000 a year for quinine. Notwithstanding this vast expenditure, the supply might be tripled with advantage. Indents for quinine are jealously watched. At civil stations it is almost refused, and during an outbreak of fever it is always the first article to fall short, and the last to be sufficiently replaced. Of the cost of the remaining drugs we are not informed, but it can scarcely fall short of something like 30 lacs of rupees a year. These two figures are sufficient to prove the importance, in an economical view, of the substitution of native drugs. On the important benefits their introduction, or rather discovery, would confer upon the people, it is needless to enlarge. To the mass of the population English medicines are totally inaccessible. Almost alone among imported goods, drugs maintain the price they bore in the good old days before the Pagoda-tree had been shaken into barrenness. Men in sickness do not ask the price of medicine. The vendors have every interest in maintaining it. Doctors have little interest in its reduction, and so the good old profitable rates are allowed quietly to endure. The natives do the best they can, sometimes reviving under drugs that would kill any other race of human beings, but usually dying of attacks which the Englishman regards as temporary ills. The evil and its remedy are both understood, and have been pointed out about once a week during the half of the past century. Yet we have done nothing towards obtaining the remedy we all know to exist. There is probably not a medicine imported from Europe, not a costly drug from South America, which has not its counterpart in India. What have we done to discover them? Doctors living alone, without communication with their brethren, occasionally stumble on some valuable plant, some febrifuge or substitute for catechu. They cure all around, satisfy themselves of the correctness of their views, and report to the Medical Board. The white ants eat the Report with gusto, the doctor moves on disheartened to his next station, and there the matter ends. It is useless for the advocates of these effete institutions to talk of the valuable investigations they have suggested or proposed. How many English drugs have they displaced within this generation? It is a result, not a report, that is required, and the only one obtained is an immense expenditure. At the present moment there is a committee sitting to ascertain what articles now imported from Europe can be obtained in India. How many drugs will that committee condemn? We will venture to predict, not one, though every member of it has probably some vague idea that all the English medicines can be replaced. We need an officer specially appointed for this duty, with power to make researches throughout India, and to compel the Services to aid him. Usually all information obtained will be willingly placed at his disposal. It is hopelessness rather than want of energy which leads so many surgeons to leave their information inaccurate or half-digested. No man with brains to devote himself to study will submit his work to a Board selected for its age, and still less to a Board which is regarded as a sepulchre of records. It is individual persistent energy, solely devoted to this one subject, which can alone accomplish any permanent improvement. A skilled chemist, communicating with all India, testing every drug, and bringing all experience into one focus, would do more in a year to ascertain the true qualities of the native pharmacopœia, than the Boards will accomplish in a century. Such an officer would be no very expensive addition to the staff of the medical service.—*Bombay Telegraph.*

SORBUS.

I have a copy of 'Dodonæi Historia Stirpium,' etc., published at Antwerp in 1553. There is a portrait of the author, half-length, full-faced, holding a flower in his right hand. He is attired in a full cloak, edged with fur, and a small cap on his head. On the side of the portrait is printed—

Remberti Dodonæi æta. XXX5 virtute ambi.

The book is filled with illustrations of all the plants described, and they are very well done. It is also filled with marginal notes of the description and properties of the plants, written in a plain, close, neat hand. At the bottom of the title-page, in the same writing, is written—

Soli deo Robertus Cockram 1600.

Would some of your readers inform me if anything is known of this Robert Cockram? He must have been fond of the subject, and had much patience to write so many notes in the margin of the work.

His note on the *Sorbus* is as follows:—"Sorbe Apple-tree—A Service—Sorb-tree—Fruit Sorbus—Sorbe Apple. There be three sorts of Sorbs. The flowers be white, the fruit like a peare, red towards the sun; groweth in moist places in Douchland; flowereth in March; fruit ripe in September; fruit is astringent, like Medlars. The Sorb Apples, or service berries, are like Medlars in virtue and operation. The bark of one kind of Sorbus, which is our Quick Beam, is used instead of Tamarisk for diseases of the melt," etc. S. B.

POA GLAUCA?

Many years ago I collected at Foalfoot, Ingleborough, what I thought was *Poa glauca* of Smith, and it is quoted so in his 'English Flora.' Rather lately there had been gathered in the same place,—I think, by Backhouse or Baker, or both,—what is called *P. Balfourii*. Can you tell me if they are the same plants? Mr. Baker, who saw my specimen, and gave me one of *P. Balfourii*, thought they were the same. On the other hand, a person told me lately that they had them both as distinct in the Dublin Botanic Garden. JOHN WINDSOR.

P. S. The viviparous form of *Cynosurus cristatus*, mentioned in the "Herts Flora" in your last number of the 'Phytologist,' I see is alluded to in Smith's Flora Brit. vol. i. p. 112.

Note.—An extract from our correspondent's letter is printed, to give the pleasure of solving his doubts to such of our readers as are better acquainted with the plants in question than we are.

HYPNUM OCHRACEUM, *Turn.*, IN THE ISLE OF MAN.

In the present volume of the 'Phytologist,' p. 111, I have given "the stream near Castletown" as a locality for "a curious fluitant form of *Hypnum palustre*." Upon a subsequent careful examination, I find that it is a distinct species, viz. *H. ochraceum* of Turner. J. H. DAVIES.

Thirsk.

AGARICUS CAMPESTRIS.

While gathering a stew for supper, on the 30th September, I stumbled on a curious, and perhaps unusual, state of *Agaricus campestris*. On the pileus, about four inches in diameter, was another small one (say a sixth-part as large as the former) reversed, and apparently very comfortable. There was no trace of a joining; the small one, in fact, seemed to be growing out of the larger. I do not see any other solution than this, viz. that they were growing inclined to one another when young, grew into each other (as the branches of trees occasionally do), and, the larger one obtaining the mastery, the smaller was uprooted and made to stand on his head, as in the enclosed figure. I may add that both appeared remarkably healthy. W. F.

St. Bees, October 5th, 1857.

SALICORNIA HERBACEA.

"A rose by any other name would smell as sweet."

It may be interesting to your correspondent Mr. H. Groves, to know that *Salicornia herbacea* is extensively used in Lincolnshire as a pickle, and occasionally, I believe, is boiled and used as "greens." I have seen people fetch it away for sale by cartloads from the coast off Saltfleet. The inhabitants call it Samphire, and in my early botanical days I looked more than once for the umbel of white flowers, and of course was as often disappointed. W. F.

St. Bees, October 8th, 1857.

COMMON PLANTS.

I find that there are *fifty-six* in your "List of Common Plants" which I have not observed in Lincolnshire. This is better than Mr. Stowell's *eighty-six.* There are five or six or more in your list which grow *very sparingly* with us, and several which are anything but common.

Digitalis purpurea disqualified a collection of wild flowers at Lincoln, because not a Lincolnshire plant,—whether rightly or not, I cannot say. I have never seen it in the county, and I have scoured our part well. It is very common in Yorkshire. W. F.

[What will Mr. Watson say to this?]

AGRIMONIA AGRIMONOIDES.

There is a plant, which was so called by Linnæus, but which has now been long considered as a distinct genus, and named *Aremonia agrimonioides.* It is a native of Austria, Italy, Greece, and Turkey, and therefore very unlikely to be indigenous in Scotland. I should be much obliged to Mr. Sim if he could send me a specimen of the Scottish plant for examination. C. C. BABINGTON.

SENECIO PALUDOSUS.

On the 11th of last August I saw the *Senecio paludosus* growing in a wild part of the fen between Cambridge and Ely. It was certainly native there, although small in quantity. The flowers were then over, but there could be no doubt concerning the species. As the plant has been supposed to be lost in that county, this fact may be worth recording.

C. C. BABINGTON.

DISEASE IN FRUIT-TREES.

I should be very glad if any of your correspondents could tell me whether they have noticed the following disease in fruit-trees, or can account for it in any other way than I have been led to do. This disease, which in a few months disfigures and maims the most healthy trees, appears in the following way, as far as I can judge from the very short time during which my attention was turned to it. The branches first become freckled with chaffy specks, some one or two of which become enlarged, and, seemingly, eat into the stem; this rapidly corrodes, and after a short time the bark is destroyed all round, and the branch above this point of course dies. In this way a Pear-tree, left for the purpose, was killed in about a year and a half. If the branch be cut at the commencement of the disease, a brown tinge may be noticed between the alburnum and the wood, and when it is far advanced, the rusty-red colour spreads all around. From the situation of the trees, and experiments made in changing the soil, I have supposed that the cause of the disease was the too great prevalence of oxide of iron in the gravel below: in every case of disease the roots of the trees had penetrated into the red gravel; and on making a bed of cement, of lime and rubbish, above the gravel, and planting the trees in two feet of mould above the concrete, they continue healthy and bear fruit abundantly. The Pear-trees are most affected, the Plum and Cherry less, and Almonds and hardier trees apparently not at all. Ornamental Pears, etc., suffer in just the same way. F. B. W.

Osmaston.

OAK-LEAF FUNGUS.

I wish some of your readers who are microscopists as well as botanists would take the trouble, or rather the pleasure, of examining the *Oak-leaf* at this season of the year, on the under side of which will be found small brown spots, a little raised, but when examined by a moderate power of the microscope, appear *bossed*, are studded with short hairs, and adhere to the leaf. On detaching them from the leaf and examining the under part, it will be seen that they grow by a stem, like an Agaric, are hollow and striated from the centre to the margin. I am not much acquainted with this part of the vegetable kingdom, but hope some of your readers will kindly inform me whether these productions belong to the *Fungi* tribe; and if not, what are they?

They are beautiful microscopic objects; and on examining the under side of one of them I observed two species of *minute Fungi* growing there, besides which five small insects, apparently *Aphides*, sporting in this small area, and not inclined to quit their abode.

The production of these small insects and the minute *Fungi* in so singular a locality, is worthy of investigation. I enclose a leaf with the objects on it. S. B.

ANCIENT AND POPULAR NAMES OF SOME BRITISH ORCHIDS.

Orchis mascula.—Cock's Kames (Combs); Dead-man's Thumb; Aaron's Beard.

O. latifolia.—Diel's Foot; Dead-men's Fingers; Adam and Eve.

O. maculata.—Hen's Kames; Adder Grass.

The name of a large Umbelliferous plant growing in fields and ditch-banks about Merstham and Gatton, Surrey, is asked for. We asked for a specimen, which has not been forthcoming.

Communications have been received from

C. C. Babington, F.R.S.; S. B.; Rev. W. T. Bree, F.L.S.; J. B.; Maxwell T. Masters; J. Lloyd; T. W. Gissing; J. G. Baker; J. S.

BOOK RECEIVED FOR REVIEW.

Sowerby's British Grasses. Part II.

ERRATA IN NOVEMBER NUMBER.

Page 257, line 10, *for* Flarkburgh *read* Flookburgh.
Page 258, line 10, *for* these differing *read* thus differing.
Page 278, last word, *for* few *read* fen.

ANNUAL ADDRESS *from the Publisher and Editor of the* PHYTOLOGIST.

We think it both becoming and respectful to our numerous friendly and influential supporters, to inform them that we are duly sensible of their kind efforts in behalf of the above-named publication. The contributors are specially deserving of this public acknowledgment, for they support us by their communications and their subscriptions both. The subscription list continues increasing; and this and other unmistakable signs assure us that our circle is enlarging. To readers therefore, to subscribers, and above all to contributors, our thanks are hereby duly tendered.

In reference to the mechanical and editorial features of the magazine, there appear to be no complaints; none at least have come to our knowledge. Certain suggestions have been made by friends, who not only have told us what would render the journal more useful, but have also supplied that which they thought was lacking. We earnestly wish to give the 'Phytologist' a more comprehensive character. That it is conducted in a catholic spirit no one has ever gainsaid; but our wish is to make it something more attractive than a mere record of the localities of plants. There is now in the Editor's portfolio a series of very interesting articles on Morphology, and they will all be published in due course, as we can get the illustrations ready; without these they would be unintelligible; and we have reason to look for more from the same source. There are besides in our hands some interesting papers on Cryptogamic Botany. These will be published from time to time, accompanied with explanatory diagrams prepared by the authors.

Still there is ample room for the exertions of a numerous class of botanists, who will devote their energies rather to the discrimination of species, their range and statistics, than to the more recondite branches of morphology, physiology, and embryogeny. They will not, it is to be hoped, surmise that their labours are not cordially welcome and duly estimated. A mistake here would be fatal to the circulation and even existence of the 'Phytologist,' which strives to obtain the sympathies of the *many*, as well as the approbation of the select *few*. A fact was contributed by one of our correspondents (it will appear in the 'Phytologist,' if it be not there already), that a basket of *wild flowers* was disqualified for competition at a flower-show because it contained among them the common Foxglove, the exhibitor being unable to prove to the satisfaction of the judges that the said flower was wild in that county. Our correspondent, a Lincolnshire botanist, states that he never saw it wild there. It is absent from Cambridge, Huntingdon, and Northampton, or at least it is so stated on good authority. It does not appear that its absence from Lincolnshire was known till the fact was communicated in our pages.

The *quæstiones vexatæ* what plants are common and what are scarce, what plants are completely and what plants are but partially naturalized, can only be resolved satisfactorily by the observations and statements of local botanists. The writer of this article had no hesitation, more than thirty years ago, to admit *Impatiens fulva* and *Isatis tinctoria* among the number of naturalized British plants, for the common reason, better than a woman's reason (because), that "seeing is believing." He saw the plants growing there spontaneously; and the oldest inhabitants, who had observed these plants, did not remember a time when they were not certainly to be found growing in the same places. Twenty years ago the same observer had no misgivings about *Corydalis lutea* being entitled to a place in any British Flora; but less than half-a-dozen years ago he did not know, neither from observation nor from testimony, that the near relative of the last-mentioned plant, *C. solida*, was truly naturalized. The reason was obvious enough. He had never seen the latter but in situations where it had been planted, viz. the borders of gardens, and he never saw any botanist who had seen it except in similar localities. About two years ago he saw it growing spontaneously in profusion, and, like the *Impatiens* and *Isatis* of Guildford, it appeared to have been there from a period anterior to the memory of recent generations.

The frequency, infrequency, the abundance and rarity of a species cannot be inferred from the census affixed to its name in the London Catalogue, nor from its range or area, as published in the 'Phytologist,' copied, with the permission of the learned author, from the 'Cybele.' *Botrychium Lunaria* has a provincial area of 18, or, in plainer terms, it is found in all the eighteen botanical provinces into which the British Isles have, for botanical purposes, been divided. Its comital or county estimate is 75, only seven under the very highest; yet it is to the majority of botanists a rare species, *incognita,* or one which many never saw but in the herbarium. In how many stations has it been seen by veteran botanists?—in a hundred?—in fifty? Probably not in ten!!! These are the kinds of facts which it is the object of the 'Phytologist' to record and circulate,—notices of the limits, or an approximation to the limits of species,—where or at what latitude certain plants, common enough in the south or in the east, for example, cease to be so any further to the north and to the west, and *vice versâ.* The same facts are required in order that we may have a correct estimate of the area, or latitude and longitude, of species common in the north and in the west. There was a list of what were called Common Plants printed in the 'Phytologist' several months ago. Many exceptions were made to that list, and the exceptors did good service to science. One found that there were eighty-eight species in it *not common,* because he did not observe them in his vicinity. That was a sufficient reason for his rejection of such from a list of common plants. Another objected to other species on similar and equally conclusive grounds. Yet will it be denied that there are common plants? There are such; and it will be only through the united efforts of all the botanists between the Land's End and Sutherland that they will be ascertained and duly made known.

The pages of the 'Phytologist' will always be open for the reception of such facts; and it will be through the accumulation of these that the labours of the botanical geographer can be brought to a satisfactory useful termination. The case of the *species pene defunctæ,* or desperate cases, is earnestly recommended to our contributors. None of them would wantonly destroy plants of which probably barely a score or so exist in the kingdom: tenderness is respectfully urged on those who have the happiness of meeting with a rarity. The interlopers, or fugitives, or vagabonds, almost all which figure in the *index expurgatorius* of the London Catalogue, may be treated at the will of the finder. Their duration is generally limited to a season or two, if scarce, and if plentiful, they cannot be harried.

The history of Botany and its progress on the Continent will, as usual, occupy a portion of our pages, whenever our friends will oblige us by contributions on that subject. The botany of the Colonial dependencies of Great Britain, immense though the subject be, will occasionally engage our attention, when leisure affords the means of dipping into the valuable Floras of New Zealand, Van Diemen's Land, etc., recently either completed or in progress towards completion.

Finally, we wish health and prosperity to the authors of the past and future articles of the 'Phytologist;' and while we sincerely thank them for their valuable aid already rendered, we still request their active co-operation in helping us to make the magazine both a vehicle for the conveyance of sound scientific information, and a medium for the circulation of kindly feeling, goodwill, and peace among the fosterers and fathers of science.

Chelsea, January 1st, 1858.

SCOTTISH BOTANY.

Notes on the Flora of Braemar. By J. Barton.

I will now endeavour to give some idea of the character of the vegetation in the lowland parts of the district, *i.e.* within a limit of 1000 to 1500 feet above the level of the Dee Valley, reserving the description of the more mountainous regions for a subsequent Article on this subject. It is remarkable how entirely, even in the lowest parts of the valley, and along the banks of the Dee, the vegetation partakes of an alpine character. This no doubt is in great part accounted for by the high elevation of the river-bed at this point—1100 feet, and also by the high latitude and dry temperature of Braemar, in these respects so different to the isles of the western coast; but it cannot fail to excite the surprise of the southern Lowlander to find himself treading upon *Alchemilla alpina* instead of Daisies, *Polygonum viviparum* and *Antennaria dioica* instead of Buttercups, and the lovely *Viola lutea* instead of the humbler *V. canina* or *hirta*. Our own English Heaths and Ling hold their own in common with *Empetrum nigrum, Arbutus Uva-ursi, Vaccinium uliginosum, V. Vitis-idæa,* and other beautiful mountain plants. In the meadows and moist woods we are greeted with the *Cnicus heterophyllus* and *Geranium sylvaticum* in about the same profusion as *Cnicus pa-*

lustris and *Geranium Robertianum* occur in the south. The stony banks of the streams produce *Oxyria reniformis, Arabis petræa, Rubus saxatilis, Saxifraga aizoides, S. stellaris,* and the hedges are adorned with the exquisite crimson blossoms of *Rosa villosa.* All these plants grow in the very lowest situations; but as we ascend to a height of 1000 feet above the valley, the character of the vegetation is materially altered. *Viola lutea, Geranium sylvaticum, Saxifraga aizoides, Achillea Ptarmica, Polygonum viviparum,* and others, begin to disappear, and *Epilobium alsinifolium, Rubus Chamæmorus, Tofieldia palustris, Saussurea alpina, Lycopodium alpinum, L. selaginoides,* and *L. annotinum* to take their place; these last ascending to the point where vegetation ceases altogether, with the exception of a few hardy dwarf shrubs, as *Azalea procumbens* and *Salix herbacea.*

Having said thus much on the general grouping of the plants to be found in this part of the district, it may be as well to give, without further preamble, a list of them all, arranged in order, so far as I had the opportunity of observing them.

1. *Ranunculus Flammula.* Exceedingly common in all the ditches and by the margins of the lakes.—This seems to be the only representative of the *Ranunculus* in Braemar.

2. *Trollius europæus.* Meadow near Tomantoul; linn of Corriemulzie.

3. *Arabis petræa.* Banks of the Dee, below Invercauld Bridge; also on stony ground below the the linn of Cuaich.

4. *Viola lutea.* Common by all the waysides and in fields.

5, 6, 7. *Drosera rotundifolia, D. intermedia, D. anglica.* All these three grow together in a little bog by the roadside near the farm of Cuaich.—*D. anglica* occurs much finer in a bog near the farm of Achallater, at the entrance to Glen Callater.

8. *Parnassia palustris.* Glen Callater, above the loch; also in the Sluggan, but not very common.

9. *Sagina nodosa.* Very fine in a peat-road along the shoulder of Morrone.

10. *Geranium sylvaticum.* Abundant in moist meadows; linn of Corriemulzie, etc. On a little island in the Cluny, just above Castleton, it forms, with *Cnicus heterophyllus,* almost the entire herbage.

11. *Vicia sylvatica.* Rocks at the foot of Morrone; also on the Lion's Face (Dr. Dickie).

12. **Potentilla alpestris.* Lion's Face (Macgillivray).

13. *Potentilla verna.* On rocks at foot of Morrone; but as it was out of bloom, it was almost impossible to say whether it was this or the former one.

14. *Rubus idæus.* Common everywhere.

15. *Rubus saxatilis.* Very fine on the island in the Cluny, with runners a yard long; the Sluggan; island in the Dee, etc.

16. *Rubus Chamæmorus.* Exceedingly common on the more elevated moorlands, but very rarely met with in flower or fruit; this year however it was plentiful enough on Morrone in both fruit and flower, and occurred also sparingly near the Sluggan.

17. *Comarum palustre.* In a ditch on the road to Glen Callater, close to the village.

18. *Alchemilla vulgaris.* Common in marshy places, but scarcely so abundant as the next.

19. *Alchemilla alpina.* Heaths and moors, everywhere.

20. *Epilobium angustifolium.* Rocks in the Sluggan, Craig Choinnach, etc.

21. **Epilobium alsinifolium.* In a rut at the top of the Sluggan (Prof. Macgillivray).

22. *Saxifraga aizoides.* Common in all marshy places, especially on the *débris* of granite.

23. *Saxifraga stellaris.* Not quite so abundant as the last in the lower parts of the valley, but ascending up the mountains far beyond it.

24. *Chrysosplenium oppositifolium.* Very abundant at linn of Corriemulzie.

25. **Chrysosplenium alternifolium.* Linn of Corriemulzie. (Prof. Macgillivray.)

26. *Cnicus heterophyllus.* Marshy places; banks of streams; very common.

27. *Achillea Ptarmica.* Roadsides; abundant.

28. *Antennaria dioica.* Abundant on all the heaths.

29. *Saussurea alpina.* Near the keeper's cottage at the head of the Sluggan.

30. *Gnaphalium sylvaticum.* Roadsides; common.

31. *Apargia autumnalis.* Roofs of cottages; frequent.

32. *Calluna vulgaris.* The var. with white flowers is not uncommon.

33. *Pyrola secunda.* Craig Choinnach; rocks at the foot of Morrone.

34. *Pyrola media.* By the roadside, halfway between Castleton and the linn of Corriemulzie.

35. *Pyrola rotundifolia.* On many of the heaths, but I never saw it in bloom.

36. *Vaccinium uliginosum.* The Sluggan, where I gathered one specimen with fruit; also on several of the moors. As we ascend the mountains, this plant quite takes the place of *V. Myrtillus.*

37. *Vaccinium Vitis-idæa.* Common in all the woods and on all the moors.—I observed a curious fact with reference to this plant, which I should like to hear confirmed or explained by the observations of others: in July it was very unusual to find a plant in flower—all were in berry; at the end of August however it began to come into bloom again, apparently for the second time in each plant. Is this a constant peculiarity of the plant in question?

38. *Arbutus Uva-ursi.* Craig Choinnach, etc.; very abundant in the Sluggan, its purple stems and glossy-green leaves trailing over the rocks, and studded in August with bright crimson berries; frequent on the moors.

39. *Veronica scutellata.* Bog on the road to Glen Callater, near the village.

40. *Melampyrum sylvaticum.* In some abundance at the linn of Corriemulzie, the corolla of a very deep orange.

41. *Galeopsis Tetrahit.* Common in the cornfields.

42. *Trientalis europæus.* Among Ling and Heath to the north of the Sluggan; also at the foot of rocks near Achallater.

43. *Empetrum nigrum.* Common on all the heaths.

44. *Polygonum viviparum.* Equally common with the last.

45. *Oxyria reniformis.* Stony banks of the Dee and Cluny, abundant.

46. *Betula alba.* A beautiful forest of Birch extends all the way from Castleton to Corriemulzie. The *pendulous* variety occurs at intervals, but less commonly here than in other parts of Scotland, as in the Trosachs, for example, where it seems more abundant than the other.

47. *Betula nana.* Very abundant on the boggy ground, sloping down to the Cuaich from the keeper's cottage at the head of the Sluggan.

48. *Salix repens,* var. *parvifolia.* Not uncommon on the heaths.

49. *Listera cordata.* Rocks above Corriemulzie cottage; sparingly.

50. *Polypodium Phegopteris.* Common in the shaded woods, linn of Corriemulzie, etc.

51. *Polypodium Dryopteris.* Still more abundant even than the last, forming quite a carpet of the most delicate green, on the broken ground below the Lion's Face.

52. *Polystichum Lonchitis.* Craig Choinnach; rocks below Morrone; linn of Cuaich; the Sluggan, linn of Corriemulzie. (Dr. Dickie.)

53. *Asplenium viride.* In same situations as the last, and more abundant.

54. *Cystopteris fragilis.* In every variety of form on all the rocky ledges.

55. *Botrychium Lunaria.* Among *Alchemilla alpina* at foot of Morrone.

56. *Lycopodium alpinum, L. Selago, L. selaginoides,* and *L. clavatum.* Abundant on all the more elevated moors.

57. *Lycopodium annotinum.* Especially abundant on the ridge above the Cuaich, where *Betula nana* grows; but not uncommon on all the mountains round.

58. *Equisetum sylvaticum.* Common in all the woods.

WELSH BOTANY.

Bryn Tirion, Llanderfel, Corwen.

My dear Friend,— . . . When I wrote from Llanberis on that miserable, wet, stormy day (Friday, the 24th of July), we had no idea of the fine weather and pleasant enjoyment that were, by kind Providence, in store for us. Every day since has been a fine, more or less, sunshiny day. On Saturday morning, at nine o'clock, William Williams, the botanical guide, true to an appointment previously made, joined us at the Rectory, and we sallied forth for a regular field-day. He showed everything he had promised me, and more. Within this letter's envelope you find—1, *Woodsia;* 2, *P. Lonchitis;* 3, *Lloydia;* 4, *Lobelia;* 5, *Dryas!!* Do you know if *Dryas* is in print as a North Wales (Carnarvonshire) plant before? As to *Woodsia,* we touched no plant of it; but the two fronds herein were gathered by Williams and handed to me. Three growing plants were *seen* by me upon the rock (a small isolated one) near the Dog Lake. The very same may be said of *Lonchitis*, which grew in a fissure of the north-east face of the rock below Twll-du. But I must fill in more details in another place. I found Williams very pleased to spend the day with me in wandering over the awful and grand mountain and rock scenery we traversed, where I had never been before, and where, I believe, it might have been scarcely safe for me to have gone entirely alone. We were out from 9 A.M. till after 9 P.M., returning down the steep grassy slope by moonlight. Our route was thus: up the Pass, ascend gradually beneath the overhanging or perpendicular faces of the Glyder side, till we reach a depression in the ridge, a short distance eastward of the spot where it is evident those two immense boulders, locally known as the "Cromlechs," have at some former period been detached and fallen close to the present roadside. Well, by a little pretty sharp climbing and securing our footing (in some places but a very few inches), and holding on by the projections, etc., we got through, over, and up on to the part called Craig-du, which we may consider the first landing to Glyder Fawr. Here we find *Juniperus nanus* the prevailing feature, and the two *Vaccinia*, the four *Lycopodia*, with magnificent plants of *Allosorus crispus*; all these in abundance.

After having passed this first or lower ridge, which forms the north horizon from the level of the Pass, Williams brought us a little way back to a high rocky summit, from which a most delicious view is obtained *both* ways: first, westward over the village, the vale, the lakes, Carnarvon, Anglesea, the sea, and, at particular states of the atmosphere (but not on Saturday, the 25th), high land in Wicklow is seen; second, turn, and eastward from the same spot you see up past Gorphwysfa or the Pen-y-Pass the northern and eastern end of the Nant Gwynant, the road to Beddgelert, the way towards Capel Curig, the Moel Shiabod, the way to Dolwyddelan, and the Moels which overhang the vale of Ffestiniog, and a little to the left of that, the high moors and tableland above Penmachno and surrounding the Llyn Conway. Proceeding nearly due north, we find a long but not very steep ascent to the very highest point of the Glyder Fawr, not difficult of access, except as regards distance. We have now been for some time high enough to see, south across the Pass, the perfectly clear summit of Snowdon (Y-Wyddfa), and at north-west Penrhyn Castle and the seaward end of the Pass of Nant Francon, Beaumaris and the Priestholm Island being conspicuous; but Bangor itself is concealed by the mountain called Y-Garn, the highest land between Twll-du chasm and Carnarvon. Proceeding from this highest point of the great Glyder in a north-east direction, we have full in view, right across the valley, Cwm and Llyn Idwall, the centre of the Pass of Nant Francon, right over Llyn Ogwen, upon the opposite side, Carnedd Llewelyn and Carnedd David, and the mountains towards Conway, etc. I should tell you there is another rather small lake called Llyn Bochlwyd, in a hollow, upon a higher level considerably than Llyn Idwall, which is again a higher level than Llyn Ogwen, the lowest of all the three.

Now we begin to descend by a lower part of the ridge towards the lesser Glyder (Glyder bach), and horrid-to-go-down in places I assure you it is; but it is this beginning of the descent into Cwm Idwall, upon the north and north face and fissures and interesting little ledges of the perpendicular precipices just here, where the most of the rare plants grow. *Lloydia* (in fruit) in great abundance; *Carex atrata* and *Saussurea alpina* most beautiful; the opposite-leaved and three other Saxifrages very ornamental. After having reached the first level or landing-place of the descent on this side, we come to a lower, very easy-of-access rock of some extent, covered with the *Dryas octopetala, Gnaphalium dioicum, Galium boreale, Asplenium viride, Ruta-muraria,* and *septentrionale,* Dwarf Juniper, Thrift, Sea Plantain, Sea Scurvy-Grass, and all such plants as are at Twll-du. This rock Williams calls the Rake or Rake-handle (Bech y Gribbyon). Its direction is thus: the front looks straight towards Llyn Ogwen, on the left-hand Llyn Idwall, on the right-hand Llyn Bochlwyd; from this latter point, if you ascend from the Pass of Nant Francon, it is the most easily reached. We did not descend quite to the *level* of Llyn Idwall, but we skirted it, crossing all the three or four descending torrents, including that of Twll-du, at about midway, and gradually scrambled up to the ridge and moor a little to the west of the chasm.

This day's walk and work will be remembered with pleasure long by me, and I think by Williams too, for he enjoyed it extremely. Please remember the entire credit of the discovery of the *Dryas*, which is in splendid abundance, is entirely due to him, William Williams. You may suppose that on that Saturday night I slept without rocking, and we contented ourselves on the Lord's Day with a "Sabbath-day's journey," which Dr. Lightfoot conjectures was so far, as that one might be able to return in time for evening sacrifice. Rev. Mr. Williams begins the public service of the church at half-past nine, Welsh; next, Lower Vale, English; immediately after which, Sunday School; then Lower Vale, Welsh, and reaches home for good a little before seven o'clock. . . . . W. P.

ARTISTS AND NATURE-PAINTING.

The connection which should exist between nature and art has been referred to in a recent number of the 'Phytologist,' and your excellent remarks on the subject induce me to add a few words in illustration of the importance of a knowledge of botany to improve the taste in the art of design.

After reading the observation made by you on the ivy-pattern candlestick, I was led to look at some of the articles in my sitting-room, and the first which caught my eye was a tablecover, printed in different colours, and intended to represent flowers; but, after a careful examination, I could not attach one to any class or order, flowers of one plant being combined with leaves of another, and united by the stem of a different kind.

It is not in the painting and designing of flowers only that we find these incongruities, but in modern landscape painting are seen strange misrepresentations of trees, so that is impossible to give them a name; the character of the foliage is not attended to, nor is the season of their growth distinguished. Some of our painters paint their trees in half-length, giving the lower portion only. These mistakes are not confined to painters on canvas, but are made by artists who design patterns for porcelain and pottery. On the paper which covers the walls of our rooms we also frequently find figures totally unlike anything seen in nature. The fair lady, also, whose pliant fingers so softly mould the wax, often forgets to observe the true form of flowers, making no distinction between stamens and pistils.

It is commonly remarked that the French artists' designs are more correct than those of the English, and this arises from their being more observant of nature.

There is a painting in the Vernon Collection at Marlborough House, called "Happy as a King," by Collins, which represents a boy swinging on a gate; but the drawing is so faulty, that it is impossible to make out how the gate can shut, the distance from the post being so wide. This will illustrate the want of attention to objects as they appear in nature. S. B.

THIRSK NATURAL HISTORY SOCIETY.

Botanical Exchange Club.

The monthly meeting of the Thirsk Natural History Society was held on the evening of Wednesday, the 2nd of December. Mr. J. G. Baker reported proceedings in the matter of the Botanical Exchange Club, and read letters relative to it from Messrs. Watson, Babington, and others. The following botanists were duly enrolled as members, viz.:—

Addison, Rev. F., Cleator, Whitehaven.
Crotch, Rev. W. R., Uphill House, Weston-super-Mare.
Gifford, Miss, Minehead, Somerset.
Hardy, Jno., 43, Radnor Street, Hulme.
Hunt, G. E., Manchester.
Moore, David, A.L.S., Botanic Gardens, Glasnevin.
Payne, Henry J., Barnsley.
Tatham, Jno., Settle.
Watson, H. C., F.L.S., Thames Ditton, Surrey.
Windsor, Jno., M.D., F.L.S., Piccadilly, Manchester.
Varenne, E. G., Kelvedon, Essex.

He exhibited specimens from Mr. Watson of a monstrosity of *Primula vulgaris*, with metamorphosed calyx, collected near Claygate, Surrey, in 1857, and laid before the Meeting the following list of species, 118 in number, collected or noticed by himself at an elevation of at least 800 yards above the sea-level, about the summit of Micklefell, north-west Yorkshire (the highest hill in the county), in an excursion made during the summer of 1856.

Anemone nemorosa.
Ranunculus acris.
Cochlearia officinalis (alpina).
Draba incana.
Draba verna.

Cardamine pratensis.
Viola sylvatica.
Viola lutea.
Arenaria verna.
Cerastium triviale.
Oxalis Acetosella.
Trifolium repens.
Geum rivale.
Potentilla Tormentilla.
Rubus Chamæmorus.
Alchemilla vulgaris.
Saxifraga hypnoides.
Chrysosplenium oppositifolium.
Galium saxatile.
Hieracium Pilosella.
Taraxacum officinale.
Bellis perennis.
Achillea Millefolium.
Campanula rotundifolia.
Calluna vulgaris.
Vaccinium Myrtillus.
Vaccinium Vitis-idæa.
Gentiana verna.
Veronica serpyllifolia.
Veronica officinalis.
Veronica Chamædrys.
Thymus Serpyllum.
Prunella vulgaris.
Rumex Acetosa.
Rumex Acetosella.
Empetrum nigrum.
Juncus squarrosus.
Luzula campestris.
Scirpus cæspitosus.
Eriophorum angustifolium.
Sesleria cærulea.
Poa annua.
Festuca ovina (vivipara).
Nardus stricta.
Polypodium vulgare.
Allosorus crispus.
Cystopteris fragilis.
Aspidium aculeatum.
Lastrea Filix-mas.
Lastrea dilatata.
Asplenium viride.
Blechnum boreale.
Lycopodium clavatum.
Lycopodium alpinum.
Lycopodium Selago.
Andreæa alpina.
Andreæa rupestris.
Andreæa Rothii.
Sphagnum cymbifolium.
Sphagnum acutifolium.
Sphagnum cuspidatum.
Dicranum pellucidum.
Dicranum fuscescens.
Dicranum scoparium.
Distichium capillaceum.
Trichostomum flexicaule.
Tortula tortuosa.
Encalypta ciliata.
Schistidium apocarpum.
Racomitrium aciculare.
Racomitrium fasciculare.
Racomitrium heterostichum.
Racomitrium lanuginosum.
Racomitrium canescens.
Orthotrichum cupulatum.
Pogonatum alpinum.
Polytrichum commune.
Polytrichum juniperinum (alpestre).
Aulacomnion palustre.
Bryum polymorphum.
Bryum nutans.
Bryum Wahlenbergii.
Bryum pseudo-triquetrum.
Bryum inclinatum.
Bryum capillare.
Bryum julaceum.
Bryum Zierii.
Mnium hornum.
Mnium undulatum.
Mnium punctatum.
Bartramia fontana.
Bartramia pomiformis.
Bartramia ithyphylla.
Bartramia arcuata.
Splachnum sphæricum.
Fissidens adiantoides.
Antitrichia curtipendula.
Isothecium myurum.
Isothecium myosuroides.
Climacium dendroides.
Hypnum rutabulum.
Hypnum plumosum (alpinum).
Hypnum prælongum.
Hypnum catenulatum.
Hypnum heteropterum.
Hypnum cuspidatum.
Hypnum Schreberi.
Hypnum tamariscinum.
Hypnum splendens.
Hypnum triquetrum.
Hypnum loreum.
Hypnum squarrosum.
Hypnum fluitans.
Hypnum revolvens.
Hypnum commutatum (condensatum).
Hypnum molluscum.
Hypnum undulatum.
Hypnum sylvaticum.

Of these, two of the Mosses, *Bryum polymorphum* and *Hypnum catenulatum,* are new to North Yorkshire.

Mr. J. H. Davies noticed the following unrecorded stations for muscological rarities, in each case exhibiting specimens from his own or Mr. Baker's collection.

Dicranum spurium, Hedw.—North Yorkshire: plentiful in boggy places on Pilmoor, first noticed by Mr. Baker in the spring of 1857. Aberdeen: Ben-na-bourd, Braemar, *A. Croall,* July, 1854.

Campylopus brevipilus, B. and S.—North Yorkshire. I am indebted to the kindness of Mr. Wilson for specimens of this species (which has only been gathered in Britain once before, and that many years ago), collected by himself, "in moderate plenty, with *Dicranum spurium,* in an enclosed piece of ground on the Flaxton side of Strensall Common, September 30, 1857."

Tortula papillosa, Wils.—Gloucestershire: trees near Cheltenham, 1857, *H. Beach.* North Yorkshire: on a tree near the Mere at Scarborough, September, 1856, *Jno. Nowell;* on Willows with *T. latifolia,* Sowerby Ings, near Thirsk, 1857, *J. H. D.*

Hypnum irriguum, H. and W.—North Yorkshire. Some time back Mr. Wilson wrote to me that he had found some fragments of this Moss intermixed with examples of *H. radicale,* which I had sent him from the Holmes, near Thirsk, but I have not since been able to find it there. Subsequently Mr. Baker ascertained that specimens which he had collected on the north side of the Yore at Tanfield belong to this species, and that the Moss recorded as *H. ochraceum* in Suppl. Flo. Yorkshire, from "stones in the Swale below Topcliffe Bridge," should properly be referred here.

Hypnum ochraceum, Turn.—North Yorkshire: in the small stream that descends from Easterside to the Rye at Laskill, Bilsdale, 1856, *J. G. Baker* (new to the Riding, *vide supra*).

Hypnum exannulatum, Bryol. Eur., *H. aduncum,* Bryol. Brit. —Lancashire: wet places in Cliviger, 1853, *Jno. Nowell.* West Yorkshire: bogs at Widdop, near Heptonstall, 1855, and in a small bog at Fellbeck, near Paseley Bridge, with young fruit, April, 1854, *Jno. Nowell;* Cottingley Moor, near Bingley, *Dr. Carrington;* at an elevation of about 500 yards on the south-eastern slope of Ingleborough near Gaping Gillhole, 1855, *J. G. Baker.* I believe that this species has not yet been ascertained to occur in the North Riding. It is certainly not "common" in the county, as stated in Suppl. Flo. Yks., so that it is probable that *H. aduncum,* H. and T. (*H. commutatum,* var. *condensatum,* Wils.), was confused with it.

Orthotrichum phyllanthum, B. and S.—Kincardine: Laurencekirk, 1854, *A. Hutton.* North Yorkshire: trees near Ingleby, Greenhow, 1856, *W. Mudd.* Thorns at Millbay, near Scarborough, *Jno. Nowell.* Specimens collected by Mr. Black in Forge Valley appear also to belong to this species.

Mr. H. Ibbotson exhibited specimens of *Apera Spica-venti,* from two new north-east Yorkshire stations, observed by himself last summer, viz. cultivated fields at Suett Carr, near Sutton-on-the-Forest (in the neighbourhood of the locality recorded by Archdeacon Peirson in the original 'Botanist's Guide'), and at Catton, near Topcliffe.

LATE (EARLY?) FLOWERING PLANTS.

Plants in flower in the district of Eltham and Chiselhurst, in November, 1857. *By* J. S. Mill.

Ranunculus acris.
Ranunculus repens.
Papaver Rhœas.
Fumaria officinalis.
Capsella Bursa-pastoris.
Sisymbrium officinale.
Sinapis arvensis.
Raphanus Raphanistrum.
Spergula arvensis.
Arenaria serpyllifolia.
Stellaria media.
Stellaria graminea.
Cerastium triviale.
Lychnis vespertina.
Malva sylvestris.
Malva rotundifolia.
Geranium pusillum.
Geranium robertianum.
Ilex Aquifolium.
Ulex europæus.
Spartium scoparium.
Trifolium repens.
Trifolium pratense.
Vicia sepium.
Rosa arvensis.
Rubus discolor.
Rubus corylifolius?
Tormentilla reptans.
Tormentilla officinalis.
Fragaria vesca.
Geum urbanum.
Spiræa Ulmaria.
Epilobium montanum.
Pimpinella Saxifraga.
Æthusa Cynapium.
Sison Amomum.
Heracleum Sphondylium.
Pastinaca sativa.
Anthriscus sylvestris.
Lonicera Periclymenum.
Hedera Helix.
Cornus sanguinea.
Bellis perennis.
Anthemis nobilis.
Maruta Cotula.
Chrysanthemum segetum.
Leucanthemum vulgare.
Achillea Millefolium.
Senecio vulgaris.
Senecio viscosus.
Senecio aquaticus.
Senecio Jacobæa.
Carduus acanthoides.
Cirsium arvense.
Centaurea nigra.
Lapsana communis.
Hypochœris radicata.
Taraxacum Dens-leonis.
Leontodon hispidus.
Oporinia autumnalis.
Hieracium Pilosella.
Sonchus asper.
Sonchus oleraceus.
Campanula rotundifolia.
Erica cinerea.
Erica Tetralix.
Calystegia sepium.
Solanum nigrum.
Veronica agrestis.
Veronica Buxbaumii
Lamium album.
Lamium purpureum.
Galeobdolon luteum.
Ballota fœtida.
Stachys Betonica.
Stachys sylvatica.
Thymus Serpyllum.
Clinopedium vulg. *Sm.*
Prunella vulgaris.
Chenopodium album.
Plantago Coronopus.

Polygonum Persicaria.
Rumex obtusifolius.
Rumex pratensis?
Euphorbia Peplus.
Euphorbia helioscopia.
Urtica urens.
Glyceria fluitans.
Poa annua.
Lolium multiflorum.
Alopecurus agrestis.

In flower in December:—

Ranunculus repens.
Capsella Bursa-pastoris.
Sinapis arvensis.
Raphanus Raphanistrum.
Stellaria media.
Stellaria graminea.
Geranium robertianum.
Ilex Aquifolium.
Ulex europæus.
Rubus discolor.
Rubus corylifolius?
Tormentilla reptans.
Fragaria vesca.
Spiræa Ulmaria.
Pimpinella Saxifraga.
Æthusa Cynapium.
Sison Amomum.
Heracleum Sphondylium.
Cornus sanguinea.
Bellis perennis.
Maruta Cotula.
Achillea Millefolium.
Senecio vulgaris.
Taraxacum Dens-leonis.
Oporinia autumnalis.
Helminthia echioides.
Sonchus asper.
Sonchus oleraceus.
Lamium album.
Lamium purpureum.
Ballota fœtida.
Euphorbia Peplus.

The following may be added to the list of December flowering plants:—

Ranunculus acris.
Alliaria officinalis.
Stellaria Holostea.
Cerastium triviale.
Lonicera Periclymenum.
Hypochœris radicata.
Senecio Jacobæa.
Solanum nigrum.
Veronica agrestis.
Veronica Buxbaumii.
Euphorbia exigua.
Urtica urens.
Poa annua.
Glyceria fluitans.
Dactylis glomerata.

All of these which are not in the list for November (except perhaps *Euphorbia exigua*) are freshly come out.

BOTANICAL LECTURE.

A Lecture on Botany (Flowering Plants) was delivered by the Rev. W. M. Hind, on Friday evening, December 18th, to the Windsor-street Young Men's Society, in the School-house, Windsor-street, Harrow-road. The lecturer pointed out the difference in the growth of plants from seeds having only one lobe, as compared with such as spring from two-lobed seeds, as the basis of the division of all flowering plants into two great classes. After giving a general description of the various organs of flowering plants, and of the principles of classification, he directed the attention of his hearers to the wonderful structure, the general agencies, and the various uses of plants as witnesses to the wisdom, power, and goodness of their great Creator. The lecture, being delivered to the working classes, was marked by the almost total absence of technical terms and of such expressions as would tend to puzzle rather than instruct the hearers.

Mr. Hind's praiseworthy attempt to render botany an educational means is a good example, which might be imitated with great advantage to the unlearned, from whom science, like a dead language, is locked up. It is recommended to the consideration of our readers, and we shall have much pleasure even in attempting to reduce botanical science to the comprehension of the *myriads*.

Reviews.

Irvine's Illustrated Handbook of the British Plants. Parts II. III. and IV. Thomas Nelson and Sons, Paternoster-row.

On a late occasion the publication of this work was announced in this Journal, with such remarks upon it as the issue of the first number enabled its reviewer (who is unknown to us) to make respecting it; and to those remarks, not less favourable than correct, we may request the reader to refer.

Since that period three additional numbers have appeared; and, on a careful examination of them, we believe it will be admitted that they afford additional evidence of the comprehensive nature of the work.

In the first number there is a brief Introduction, made exceedingly intelligible to all, although previously perhaps complete novices in the science of botany, by the frequent accompanying explanation of technical terms in simple language. The first part is exclusively appropriated to such introductory matter, and includes almost everything relating to the subject generally, thus enabling the student to obtain a knowledge of the anatomy, or structure, and physiology of plants: their morphology, or the variety of forms assumed by their different constituent parts, the geography of the vegetable creation, the technicalities of science, or the characters they severally present, by which their classification may be arranged, technically termed taxonomy, thus ultimately conducting to a knowledge of their various divisions, classes, orders, genera, and species. But for the exposition of these subjects, it will be necessary to refer to the work itself.

Of the various modes of classifying the vegetable kingdom, the author gives a decided preference to the Natural Method, as it is designated, and especially to that modification of it adopted by Lindley in his 'Vegetable Kingdom.'

We would however respectfully submit, whether the author may not here rather too much undervalue the Linnæan classification, so long the guide of British botanists, and in many of its classes presenting a true natural arrangement?

In the Second and Third Parts of the work the author enters into a particular description of every known British plant (excluding, at present, the minuter Orders of *Cryptogamia*); and in this, the chief department of the work, he has a full opportunity of displaying his practical knowledge of the subject.

The distinctive characters of the species are in general clearly pointed out, so as to render their identification as easy as possible to the student, whilst at the same time he appears to avoid the formation of new species out of the varieties or freaks, as it were, of form produced by a difference of soil, temperature, etc.

In the Second Part of the work the author gives a short but clear description, illustrated by figures and explanations (which very useful illustrations are continued through the work), of the more obscure Cryptogamic Orders, as *Algæ, Fungi, Lichenes, Hepaticæ,* and *Musci,*—entering thus into the sixth Order, or *Lycopodiaceæ,* where he first commences to describe species particularly, adding to each a pointed or very clear description, the area and number of counties in which the plant is found, the latitude also, and the altitude,—these latter valuable additions being taken from Mr. Watson's 'Cybele.' From the *Lycopodiaceæ* the author proceeds to treat of other Orders in succession, amongst which are the *Characeæ, Equisetaceæ, Filices, Gramineæ, Cyperaceæ, Liliaceæ,* etc., down to the twenty-eighth Order, or *Orchidaceæ.*

In the Third Part the Dicotyledonous Orders are described as far as the Order *Boraginaceæ.* This Third Part fully sustains the character of the two preceding parts; or, if any difference exists, may possibly excel them in the variety, extent, and accuracy of the information conveyed. In fine, it may be stated that the distinguishing features of this valuable acquisition to the British botanist who has not a botanical library at his elbow, are its comprehensive nature, the neat and distinct figures illustrating the description of each Order; the clear, full, and intelligible characters of each genus and species, attaching to the latter additional information as to the area and counties in which it is found, as also the altitude to which it extends, and the appropriate temperature, with the frequent interspersion of interesting remarks.

Doubtless the work will be completed at no distant period, in a similar satisfactory form, with the addition (the author says) of a glossarial and etymological index.

It ought to be mentioned, in conclusion, that the work is published at a price unusually low (160 pages, crown octavo, with numerous cuts, for 1*s.* 6*d.*), and one which can scarcely compensate for the time and labour which must have been bestowed upon it. It may be hoped however that it will command that general circulation amongst botanists and others, to which its merits so well entitle it. J. W.

The Grasses of Great Britain. By J. E. Sowerby. Parts II. and III.

The illustrations of this work have been already commended as among the most accurate and elaborately finished productions of the botanical draughtsman and engraver.

Part II. contains five plates, viz. *Alopecurus* (four species), and *Phalaris* (one species).

Part III. contains a plate of *Phalaris arundinacea,* one of *Ammophila arundinacea,* and three species of *Phleum.*

The area of *Phalaris paradoxa* can now be considerably enlarged in England. It is not confined to Swanage, in Dorsetshire, but has for years taken possession of a part of the Thames valley, or basin, as geologists term it (it is more like a trough than a basin), which part of the valley, or basin, promises to be as celebrated in future ages as the ballast hills of Sunderland were in the first quarter of this century. We agree with the author of the descriptive letterpress portion of 'Sowerby's Grasses,' in his opinion that *P. paradoxa* is not a native grass of Great Britain, in the sense of nativity, as generally understood by British botanists. It may be a question more easy to ask than to answer, What are British grasses, or British species, in general? British botanists cannot say very precisely what are British grasses. They have not yet agreed on the period necessary—first, for naturalization; second, for denizenship; and third, for nativity. There is still another class, the *stirpes indigenæ*, or, as a writer in the 'Phytologist' would term them, *βοτεναι αυτοχθοναι* (aboriginal natives).

There is an interesting account of a district, in the province of Moray, covered (inundated) in the course of a few years by a sand-flood, a consequence of eradicating, or of not protecting, the *Psamma arundinacea*, which, by its long roots, binds the sand which the waves and winds pile up on the shores. There is a legendary story of a district, on the Buchan coast, where an entire parish was overblown by a sand-drift in one night. The property belonged to two ladies, who were dispossessed by an unfeeling kinsman, and they prayed that the land might be cursed, and it was forthwith covered by barren sand.

This plant and an *Elymus* get the credit of an immense amount of positive good in the prevention of sand-floods; but they are not the only plants which bind the loose and shifting, blowing sand. Several *Carices* are found to have similar properties. These also bind the loose sand with long tenacious roots, and several Dicotyledonous plants likewise, as *Convolvulus Soldanella, Eryngium maritimum*, and others, "quæ nunc enumerare longum est." Yet these two plants, the *Psamma* and the *Elymus*, get all the merit, and the humbler and equally useful species are overlooked. The former are prominent; the latter, with the exception of the *Eryngo*, are humble, or prostrate,—a tempting subject for a bit of moralization, "at verbum sat."

To help those who are undecided about the merits of *Phleum pratense* as a grass and hay-plant, the following account may be helpful. When we were in Scotland in 1856, we fortunately *fell in with* the land-steward of the Marquis of Breadalbane, somewhere near Glenlyon. He was going to superintend the making of a large field of hay, the grass of which was exclusively *P. pratense*. In Scotland, almost the only cultivated grass used to be *Lolium perenne*. We were delighted to see that, here and there, *L. italicum* or *L. multiflorum* was taking the place of the former. On inquiry, we learned that the produce of *Phleum pratense* was much greater than *Lolium perenne*, and that it was preferred by the horses, and believed to be more nutritious than the common Ray-grass.

The very best grasses may be unproductive, or worthless, if they are not cultivated on a suitable soil. The Meadow Foxtail is an example. It is an excellent and an early grass, but it requires a somewhat moist and rich soil. It is worthless on dry uplands.

The Timothy-grass (*Phleum pratense*) appears a stunted, wiry grass on the dry banks of our upland downs, while on Battersea-fields its spike alone attains a length of nearly a foot.

BOTANICAL NOTES, NOTICES, AND QUERIES.

French Asparagus.

In the extract from Mr. E. Forster's letter from Bath, in 1809 ('Phytologist' for September, p. 221), he says, "I have been out riding, and found an *Ornithogalum*, not yet in flower, but looks as if it would be white, and a spike." I have very little doubt this refers to *O. pyrenaicum*, one of our rarer natives, but which grows abundantly in some places in the neighbourhood of Bath. I remember to have seen it in great profusion in the year 1838, a few miles from that city, though I cannot now particularize the spot: it was a wild, stony or rocky tract, with low brushwood; here the *Ornithogalum* grew all about, just as *Scilla nutans* does in woods. At that period, and so late as 1856, the immature flower-buds were regularly sold, during their season, in the Bath market as an esculent vegetable, under the name of French Asparagus. They were tied up in bunches, each spike of flower-buds being very compact, and resembling a short ear of green corn. As there was a constant supply of the vegetable in the market and greengrocers' shops, I conclude that it suited some palates. To my taste, it had nothing to recommend it, but, on the contrary, was most disagreeable: the flavour, besides being somewhat hot and acrid, reminded me of the smell of the bruised stalks of *Scilla nutans;* so I partook but very sparingly of the French Asparagus, for fear of being poisoned.

W. T. Bree.

Allesley Rectory, November, 1857.

Pyrus Aucuparia.

Under the head of "Pyrus Aucuparia" ('Phytologist,' October, p. 251), "S. B.," after stating that the tree is known in different parts of the country by the names of "Wiggen-tree," and "Roaen-" or "Rowen-tree," says that "it would be interesting to know any other names by which this tree is called in England, Scotland, and Wales." For his information, I beg to state that here, in Warwickshire, the tree is commonly called "Quicken."

W. T. Bree.

POLSTEAD CHERRIES.

I cannot answer your correspondent's question respecting the kind of tree that produces the "small black Cherries" in Buckinghamshire; but in Suffolk there are a great many small Cherries brought from the neighbourhood of Polstead, and hence known as "Polstead Cherries." Probably some reader in that neighbourhood could determine what species of *Prunus* it is that produces it. The "Polstead Cherry" is small, black, and round, about the size of a fine Sloe. I have always presumed that it is the fruit of the *P. Padus.* T. W. GISSING.

WILD CHERRIES.

In reply to your correspondent's question, I would observe that there are three kinds of Cherries, commonly so called:—*Prunus Padus* (Bird Cherry), *P. avium* (Wild Cherry), and *P. Cerasus* (Red Cherry). The *P. avium* is a large tree, found commonly in woods, and bears a small, black, round fruit, called in many parts of England "merries." It is sweet, and the baskets in which the venders carry them are frequently covered with branches of the *Pteris aquilina*, as this Fern is found growing where the trees grow. I believe this kind of Cherry-tree is met with on chalky soils, and the western side of Buckinghamshire is on a range of chalk-hills. The leaves of this Cherry, as also the *Prunus Padus* and *P. Cerasus*, have two small glands, either on the leaf or on the leafstalk; those on the *P. Padus* are on the back of the leaf at the base, the *P. Cerasus* on the stalk below the leaf, and the *P. avium* on the leafstalk lower down. I believe these distinctions are well marked and constant. The Cherry-trees referred to in the October number of the 'Phytologist' grow on the south of Ashey Down. It is probable that the word Merry is derived from the French *Merise* (Wild Cherry). Mr. Tollet, in a note to 'Midsummer Night's Dream,' says, "We term a black cherry a *morello*, and a small black cherry a *merry*,—perhaps from *Maurus*, a Moor, or rather from *morum*, a mulberry!" VECTIS.

POA GLAUCA *on Ingleborough.*

With reference to Dr. Windsor's inquiry ('Phytologist,' N. S. vol. ii. p. 302), I beg to say that, so far as I am aware, there is only one *Poa glauca* on Ingleborough, and that the plant which grows so plentifully, at about 600 yards of elevation, where the Silurian strata crop out on the north-west flank of the hill. The specimens given under *P. Balfourii* in my 'Plantæ Criticæ' and the plant of Suppl. Flo. Yorks. are doubtless the same as that intended by Dr. Windsor. E. B. 1720 is quoted by authors sometimes under *nemoralis*, and sometimes under *cæsia*. J. G. BAKER.

BRASSICA OLERACEA.

"A Correspondent" in a recent number of the 'Phytologist' asks what evidence there is of this being the parent of the cultivated varieties. Balfour, in the 'Class Book,' says: "In culinary vegetables, the tendency to sport is very evident. In this way all the varieties of Cabbage, Cauliflower, Broccoli, Savoys, and curled Greens are derived from one stock, *Brassica oleracea.* This plant grows wild on the sea-shore, and when cultivated it assumes peculiar forms. Thus it forms a heart, as in ordinary Cabbage; its flower-stalks become thickened and shortened, as in Cauliflower and Broccoli; or its parenchyma is highly developed between the vessels, so as to give rise to the crisp and curled appearance of Greens. This tendency in the plant to produce monstrosities was early noticed by cultivators, and care was taken to propagate those individuals which showed abnormal appearances. The seeds of such were saved, put into good soil, and no plants were allowed to remain except such as presented the required form. In this manner certain races of culinary vegetables have been established. If, however, these cultivated plants are allowed to grow wild, and scatter their seeds in ordinary soil, they will, in the progress of time, revert to the original type or species. Instances such as these show the remarkable effects of cultivation in perpetuating varieties by seed." Babington (fourth edition), Hooker and Arnott (seventh edition), and Withering (sixth edition), all give this plant as the origin of the garden Cabbage. I have cultivated the plant from seeds obtained at the Orme's Head, for three generations of it, and found the leaves became much larger and broader in proportion than they were in a wild state, the tendency to form heart also being much greater than in its native habitat.

With regard to *Ægilops*, I used the word *trying* as I did not think it had been sufficiently experimented on to be quite proved as a *fact.* The authority for it is M. Esprit Fabre d'Agde, whose views are to be found, according to Balfour, in the 'Gardeners' Chronicle' for July 17th, 24th, and 31st, 1852. He gives the time required for the change as twelve years. Professor Henslow read a Paper at the meeting of the British Association in 1856, in which he says he does not think M. Fabre's original statement is without foundation. I have only seen the newspaper report yet; the Association Report being only just out. W. CHESHIRE.

YEW.

"Yon black and funeral yew,
That bathes the charnel house with dew."

"Ancient Christians used to put hedera quoque vel laurus et hujusmodi, quæ semper sero aut virorem in sarcophago corpori substernientur, ad significandum quod qui moriuntur in Christo, vivere nec desinunt! Nam licet mundo moriuntur secundum corpus, tamen secundam vivunt et revivescunt in Deo. Rosemary, etc. signifying that though the body was dead, yet, like plants, it would revive (again); that the soul, like evergreens, was immortal, on which seasons make but slight change. Yet in churchyards from this origin."—*Evans's 'North Wales,' p.* 59.

SPREAD OF THISTLES.

These pests of cultivation have emigrated with man into South America. In the vast plains of Buenos Ayres, Thistles now almost exclude every other vegetable production. They have now spread over extensive districts, and are rapidly extending their possessions.

HYPERICUM ANDROSÆMUM, *Curtis.*

"About London all our Hypericums abound more than this, which I have met with in one wood only, viz. the '*Oak* of *Honour* Wood,' near Peckham Rye, adjoining Norwood" (Fl. Londinensis). In this the petals are smaller and more pointed than in those represented in E. B. 1225; the fruit is drawn as if more fleshy and rounded, and the styles are much shorter. The petals as represented by Curtis are not rounded, but tapering. The E. B. fig. Mr. Babington says represents *H. anglicum*, Bertol. Can any reader of the 'Phytologist' inform us if he knows anything about the history of the plant figured in 'English Botany,' and called *H. Androsæmum?* Curtis gives the history of his plant as quoted above.

Many years ago I used to observe *H. Androsæmum* in great abundance and very luxuriant on the verge of Hainault Forest, now disforested. The plant grew on the bank of the hedge which separated the forest from the fields on the left side of the road between Abridge and Chigwell and the great Essex road to Chelmsford, through Brentwood. I suppose it was the same as Curtis's plant. At that period I would not have noticed the difference between the plants represented in these two great national works on our indigenous Flora. A. I.

I shall be glad to exchange British plants with any lady or gentleman desirous of doing the same; *Orchis militaris, O. tephrosanthos, O. fusca, O. hircina, Goodyera repens, Spiranthes cernua,* and *Liparis Loeselii* being desiderata with me. J. W. GISSING.
Wakefield.

Has *Orchis hircina* been found in Suffolk since 1850? We believe the answer, when given, will be, "Neither before that period, nor since."

Communications have been received from

Maxwell T. Masters; J. G. Baker; Archibald Jerdon; E. N.; J. S.; Rev. W. M. Hinds; Charles Howie; W. Sutherland; John Windsor, F.L.S.; Professor Alphonse De Candolle; J. S. Mill.

BOOKS RECEIVED FOR REVIEW.

Sowerby's British Grasses; Part the Third.
Irvine's British Plants; Part the Fourth.

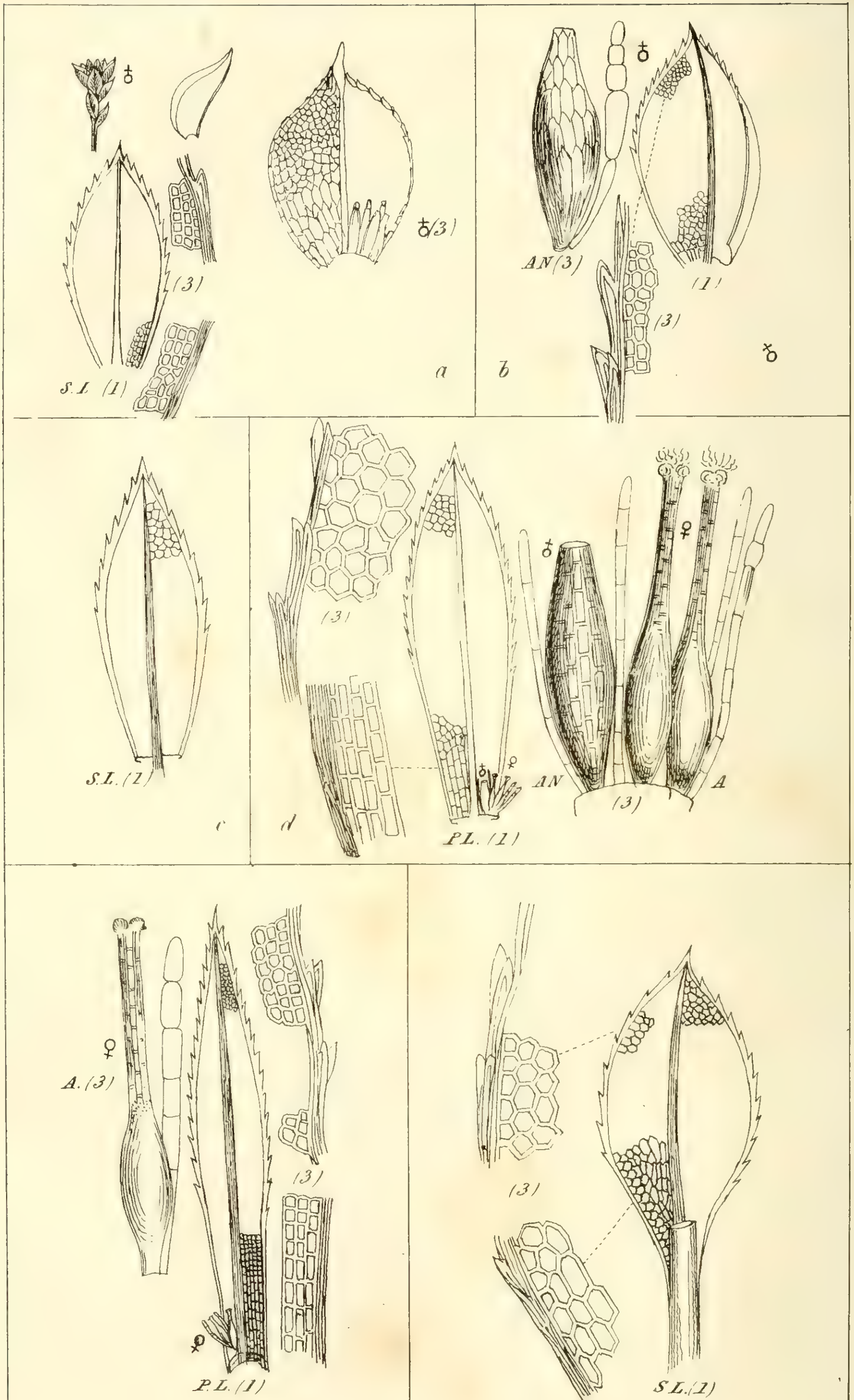
ERRATA.

Page 294, line 13, *for* varieties *read* rarities.
Page 294, line 27, *for* Sherely *read* Henly.
Page 303, *for* AGRIMONOIDES *read* AGRIMONIOIDES.

ERRATA IN 'BRITISH BOTANY.'

Page 175, under Tribe III. *Roseæ, for* SPIRÆA *read* ROSA.

Page 187, R. idæus, the area, etc., should be A. 18; C. 75; lat. 50–60°; alt. 0–650 yards; temp. 50–40°. A. 1, Devon and Somerset, should be placed under *Var. Leesii.*


♂
♂(3)
(3)
S.L (1)
a
AN(3)
♂
(1)
(3)
b
♂
S.L.(1)
c
(3)
d
P.L.(1)
♂
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AN
(3)
A
♀
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(3)
♀
P.L.(1)
♀
e
(3)
S.L.(1)
f

W Pamplin imp.

B.Carrington del.

ON MNIUM ORTHORHYNCHUM, *Brid.*

By BENJ. CARRINGTON, M.D., Fel. Bot. Soc. Ed., etc.

(*With a Plate.**)

Considerable discussion has taken place of late as to the claims of this Moss to be regarded as a species. I think however it will not be difficult to discover the means by which it has been brought into discredit. Until lately it was one of the rarest of British Mosses: only two stations are given in the Bryol. Brit., that of Mr. Spence at Mowthorpdale, Yorkshire, plants from which I have not seen, and Mr. Mitten's station at Cuckfield, Sussex. Duplicates from the latter (*M. riparium*, Mitt.) have been in more general circulation; and when it is known that this is not the true Moss (if more than a variety of *Mnium serratum*), the cause of misunderstanding will be no longer obscure.

Mr. Nowell has the credit of first finding the true *M. orthorhynchum* in fruit, on Arncliffe Clouder, West Yorkshire, June, 1856. In September of the same year I collected it at Malham, with male flowers, and, in company with Mr. Nowell, near Ingleborough (May 21), and Malham (July 20, 1857). All these stations are on the Scar limestone, and within a circumference of ten miles of each other. It is probably not uncommon in subalpine countries of like formation, but overlooked as a state of *M. serratum*.

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* *Explanation of the Plate.*

[*Note.*—The figures marked (1) are magnified about 20 times; those marked (3) are magnified about 180 diameters.]

(*a, b.*) *Mnium orthorhynchum*, barren plant. *a.* S. L. Stem-leaf, and border, magnified. ♂. Upper part of the stem, showing the perigonial leaves, natural size. (♂ 3.) Inner perigonial leaf, magnified 65 times, with antheridia at the base *in situ*. *b.* (1.) Outer perigonial leaf, magnified 20 times. (3.) Part of border, magnified 180 times. AN. Antheridia and paraphysis.

(*c, d.*) *Mnium serratum*. *c.* Stem-leaf, magnified. *d.* P. L. Perichætial leaf. The figures to the left show the areolæ still more magnified. At the base the synoicous inflorescence is indicated. AN. Antheridia, and A. archegonia (magnified 180 times), on the same receptacle, and surrounded by jointed paraphyses.

(*e.*) *Mnium orthorhynchum;* fertile plant. P. L. Perichætial leaf and border, magnified. A. Archegonia and paraphysis.

(*f.*) *Mnium riparium*, Mitten. S. L. Stem-leaf. Portions of the border and base of the leaf, the areolæ magnified 180 times.

Mr. Wilson thus describes *M. orthorhynchum* in Bryolog. Brit. p. 255:—

"Dioicous: fertile stem simple; lower leaves distant, ovate-acuminate, decurrent; upper leaves ovate-lanceolate or subspathulate, with a cartilaginous border, doubly spinuloso-serrate. Capsule horizontal, oval; lid conico-rostellate."

This agrees well with the fertile plants before me, but in the male plant the upper leaves differ in form. The following description may probably be found more accurate.

Stems from one to two inches high, growing in broad, rather dense tufts, often bent to one side. Fertile stem simple; leaves spreading, of a light green colour, rigid, crisped when dry, lower ones ovate-acuminate; perichætial leaves lanceolate or linear-lanceolate, acuminate, decurrent, margins with double serratures.

Male stem simple in the Yorkshire specimens (Mr. Wilson's figure has it branched near the apex, but that appears to be an abnormal state); lower leaves distant, ovate-acuminate; perigonial leaves forming a rosulate tuft, broadly ovate, very convex, tapering to a short point; nerves reaching to the summit, green except in the old leaves.

Areolæ rather opaque, not half as large as in *M. serratum*, round or variously compressed, elongated at the base of the leaf. Margins cartilaginous, of three rows of elongated narrow cellules. The inner perigonial leaves, containing the antheridia, are obcordate, suddenly acuminate, convex, of thin texture, almost destitute of teeth, and with much larger reticulation.

M. orthorhynchum differs as follows from *M. serratum*; the inflorescence is dioicous, whereas in *M. serratum* it is synoicous. Stems more densely tufted, often leaning to one side, stouter, and of a lighter green colour. Leaves more spreading, those of the fertile plant narrower; upper leaves of the male plant broader and more convex, rigid, and much more twisted when dry. Nerve green, not red, as in *M. serratum*, except in the old leaves. Reticulation minute, not half so large as in the latter Moss. See figures of areolæ, magnified 250 diameters.

M. riparium, Mitt., agrees with *M. serratum* in many respects, the areolæ being hexagonal, and as large as in that Moss. The leaves are broader, more suddenly acuminated, of laxer, softer texture, less crisped when dry, of a more vivid green colour, often tinged with purple below. My specimens have neither male nor female flowers: if on further examination it should prove to be dioicous, it may be a distinct species; it is certainly distinct from *M. orthorhynchum,* although belonging to the same group. I have seen states of *M. serratum,* growing in damp situations, approach it very nearly in aspect.

Yeadon, near Leeds.

Note.—Since the above was written, I learn from a correspondent that Mr. Mitten has, in a late number of your journal, arrived at nearly the same conclusions expressed above. He thinks *M. riparium* dioicous, and a distinct species, so that the original name may again be appropriated for it.

LINCOLNSHIRE BOTANY.

A few of the rarer Plants in the neighbourhood of Winterton, Lincolnshire. By the Rev. W. Fowler.

Most people have a very misty idea of Lincolnshire. We are all acquainted with the reputed notion of our south-country brethren, not many years ago, who laboured under the delusion that it was one vast marsh, with here and there an island, peopled by duck-shooting, web-footed inhabitants. In this enlightened age we expect people to know more than this of the counties of England, and yet I *have* met with those who thought we were obliged to leave our ground-floor in rainy weather, and amuse ourselves by shooting wild ducks out of the bedroom windows.

Now I do not mean to call Lincolnshire a beautiful county, but there are some pretty spots in it, if not for artists, at least for botanists, a fact which I must now endeavour partially to prove.

My operations have been chiefly confined to two districts; one, that about Winterton, in the extreme north (about two miles south of the Humber), the other near Saltfleet, a decayed town on the seacoast. On the present occasion I shall confine myself to the former, reserving the latter for a future number, if the Editor thinks good. On looking over the later numbers of the 'Phytologist,' I do not see any accounts of Lincolnshire plants, and therefore conclude that there are few (if any) readers of our journal in that county. For this reason I shall not give *special* localities, though I should be very glad to acquaint any one with them who should wish it. A few words about the geology of the district, and then we will pass on to the plants, and endeavour to keep to them.

The chalk wolds form our highest ridge, but are very unproductive; in fact I have never found anything worth notice on them except *Scabiosa Columbaria* and *Orchis pyramidalis.*

Beneath the chalk we have two or three kinds of oolitic limestone, which produce all the rare plants we have, except those of the bogs and heaths situated on the gryphite limestone of the Lias. I was going to say that I would not exceed a *circuit* of six miles, but I remember that I am stopped in one direction by the Humber, which renders that term not exactly applicable. To me, and I dare say to many others, by far the hardest part of writing a Flora, is the task of deciding what plants to include among "the rarer plants," etc. There are several very interesting and uncommon ones, as *Ranunculus arvensis, Reseda Luteola, Geranium sanguineum, Carduus nutans, Convolvulus arvensis, Euphorbia exigua, Carex intermedia* (Good.), *Carex riparia, Glyceria rigida,* etc., which cannot be included in a *short paper,* —which two last words have come home to me, and tell me I ought to get to work.

It will perhaps be the most convenient method to divide them thus :—

I. *Those found in Broughton Wood and the unworked quarries on its outskirts.*—Anemone Pulsatilla, Aquilegia vulgaris, Acer campestre, Euonymus europæus, Genista tinctoria, Astragalus glycyphyllos and hypoglottis, Hippocrepis comosa, Spiræa Filipendula, Bryonia dioica, Cornus sanguinea, Lactuca muralis, Serratula tinctoria, Carduus pratensis, Erigeron acris, Campanula latifolia, glomerata, and Trachelium, Ligustrum vulgare, Polemonium cœruleum (*possibly* an escape, though appearing truly wild), Teucrium Chamædrys, Lamium Galeobdolon, Ophrys apifera and muscifera, Narcissus Pseudo-Narcissus, Convallaria majalis, Tamus communis, Arum maculatum, Melica nutans, Brachypodium pinnatum.

II. *Cornfield plants.*—Silene noctiflora, Specularia hybrida, Linaria minor, Alyssum calycinum (I never met with more than one plant of this or Jasione montana).

III. *Bog plants.*—Drosera intermedia, Stellaria glauca, Hypericum elodes, Hottonia palustris (which flourishes best in the drainings of bogs, though found also elsewhere), Lastrea spinulosa.

IV. *Aquatic plants.*—Ceratophyllum demersum, Stratiotes aloides, Sagittaria sagittifolia, Potamogeton densus and lucens, Lemna trisulca.

V. *Plants which cannot conveniently be placed in any of the above divisions.*—Chelidonium majus, Reseda lutea, Trifolium fragiferum, Onobrychis sativa, Rosa arvensis, Saxifraga granulata, Silaus pratensis, Pastinaca sativa, Torilis nodosa, Gentiana Pneumonanthe, Cuscuta Trifolii, Verbena officinalis, Ballota nigra, Marrubium vulgare, Cynoglossum officinale, Humulus Lupulus, Orchis Morio and ustulata, Typha latifolia, Hordeum pratense and murinum, Lycopodium inundatum and alpinum.

In conclusion (and by way of apology for myself) I would venture to suggest a question on the much-vexed subject of "common plants." Instead of setting to work in good earnest and comparing our lists, do we not rather indulge in a little favouritism? Each one has his *pet plants,* which he would fain consider as uncommon, and thus we lose (what after all are most valuable) *good dry statistics.* If some one in each district would forward to the 'Phytologist' those in your List of Common Plants which he has not observed, we should soon come to a satisfactory conclusion on the subject.

THE FERNS OF ABERDEEN AND KINCARDINE.

By W. SUTHERLAND, M.A.

Polypodium vulgare, L. Abundant over the two counties, in all favourable situations.—Although much variation is observable in different plants, none of the very marked and named varieties have as yet been detected.

Polypodium Phegopteris, L. Rare in Kincardineshire, as it does not include much of the mountainous districts, in the parish of Strachan, and in the Corbie Den (?); it is however quite common in the alpine and subalpine districts of Aberdeenshire.

Polypodium Dryopteris, L. Common in woods, heaths, and stony places.

Polypodium alpestre, Moore. By no means rare on the higher mountains of the Braemar district, or at the foot of that gully, on the eastern aspect of Lochnagar, where the *good* plants grow, and along which the botanist must needs risk his neck in gathering the many rarities for which this mountain is botanically celebrated. The Fern however may be reached by ascending from the loch below; and in scrambling across the rocks that lie between these two points, wonder it is if you do not disturb and send skipping and mewing before you a genuine specimen of the British tiger (*Catus ferus*), which every Highland tourist is so anxious to see in its native haunts. But never mind him: pass onwards. "Excelsior!" be your cry, and the filling your vasculum with the rarity your object; which done, cast your eyes upwards and around on these gigantic battlements of Nature, which rise perpendicularly from the loch below, at least 1500 feet in many places, and present, from the well-known peculiarity of weathered granite, an appearance more likely to recall certain hazy conceptions of what Cyclopean walls were like, than any modern figure either of speech or of architecture could convey an impression of. It occurs also by most of the watercourses in the higher grounds, as at wells of Dee,—by the way, a most romantic and sublime spot,—at the top of Glen Callater, on Ben Aan, etc.

Cystopteris fragilis, E. Fl. St. Cyrus, Den Fenella, Kincardineshire; at Fintray, Den of Craig, and other situations in Aberdeenshire; and often running into the other species or varieties, as you choose to call them.—Var. *β*, *angustata*, in Braemar. —Var. *γ*, *dentata*, most plentiful in upland and alpine places.— Var. *δ*, *Dickieana*, at two or three places on the seacoast, at the Cove, Kincardineshire. In one at least of these places almost extirpated, and that was the situation where the most typical specimens were got; in the other places there is a tendency to become identical with *dentata*.

Polystichum Lonchitis, Roth. Carr Rocks and Craig Hoynach, Braemar; Morven; so that it is a somewhat uncommon species in Aberdeenshire. Its head-quarters appear to be Canlochan, Forfarshire, and there it is very abundant.

Polystichum lobatum, Swz. Kincardineshire, in the Corbie Den, and that other lovely spot in St. Cyrus, to the south of the county, Den Fenella; common in the higher parts of Aberdeenshire.—*β*, *lonchitidioides*, Corbie Den.—Is this the var. which Continental botanists mean under this name?

Polystichum angulare. Banks of Sheeoch Drumoak, Kincardineshire.

Lastrea Oreopteris. Kincardineshire; plentiful in the parish of Strachan, Aberdeenshire; abundant also in the alpine and subalpine districts; there is one station even in the vicinity of Aberdeen.

Lastrea Filix-mas, Swz. Very common.

Lastrea spinulosa, Willd. In both counties, frequent; and it is much more abundant near the summits of the Braemar Mountains than

Lastrea dilatata, Willd., which however is widely distributed over the district.

Asplenium septentrionale, Willd. In the Pass of Ballater, one of the most remarkable sights in the Aberdeenshire Highlands. It is a narrow pass—rather, cleft—through which the Deeside road passes some distance, amid the perpendicular cliffs on both sides. Craigin Darroch forms the wall on the south side; but it is on the north side that the Fern has been found, and there chiefly in the chinks of a massive vein of felspar that at two points intersects at right angles the north wall of the Pass, itself running east and west. I have twice scaled these cliffs: the first time in company with the gentleman who made the discovery, Dr. C. Paterson, and putting out of the question the difficulty of ascent, have both times succeeded in getting plenty of this northern Fern; but no trace of *alternifolium.*

Asplenium Ruta-muraria. Rare in Kincardineshire, bridge at Den of Brotherton, Benholme; more usual in Aberdeenshire, as on the St. Machar's Cathedral, and a few similar stations about town, but always on buildings; I have however once met with it *in situ* (so to speak) on the bare rocks by the stream in the Den of Craig.

Asplenium marinum, L. Plentiful on the Kincardineshire coast.

Asplenium Trichomanes, L. In Kincardineshire, Den Fenella, and below the bridge of Fuagh. Aberdeenshire, Serpentine Rocks at Meadowbank, and in the Den of Craig, Carr Rocks, etc., Braemar.

Asplenium viride, Huds. Abundant on the Carr Rocks and other situations in Braemar, as also near Ballater.—(If *A. fontanum* ever existed in 'Kincardineshire, it is now destroyed; and in this place I may also mention that Professor Beattie, author of the 'Minstrel,' was quite wrong in assigning the banks of the Carron as a station for *A. Capillus-Veneris.* It is a pity that the mistake should have been so much propagated as it has been.)

Asplenium Adiantum-nigrum, L. Kincardineshire, Den Fenella, Annie's Dam, at Benholme, and at the Cove. Aberdeenshire, Meadowbank, Fowenruffe (a serpentine hill in the interior, where I gathered *Arenaria verna,* for the first time in the county), Pass of Ballater, and in Braemar.

Athyrum Filix-fœmina, Roth. Common.

Scolopendrium vulgare, Smith. Very abundant in Den Fenella; said to grow at Auchmedden, in Aberdeenshire.

Blechnum boreale, Swz. Hillsides, heaths, etc., abundant.

Pteris aquilina, L. In great plenty. I have seen it upwards of ten feet high, when there were shrubs, etc., to support it.

Allosorus crispus, Bern. With *Polypodium alpestre* on Lochnagar and in the Glen Callater.

Osmunda regalis, L. Kincardineshire, Cove; Aberdeenshire, near Loch of Drum.

Botrychium Lunaria, Swz. Generally diffused over these counties, and often at a considerable elevation: in some places sparingly, and requiring minute search; in others, as at Belhelvie, quite densely scattered about. A recent writer in the 'Phytologist' clearly mistook this Fern for *Ophioglossum vulgatum* when he gives the Loch of Drum as a locality; but as his rambles and the remarks thereon bore evident traces of haste,* this and several other misstatements are not to be wondered at. I am almost convinced however that *O. vulgatum* (one or two specimens) was gathered several years ago in Den Fenella, and not since, notwithstanding very diligent search. This would afford no probability of its growing at the Loch of Drum, as the one enjoys quite a different soil and climate and exposure from the other.—The statistical account gives Arbuthnot as a station, which is much more likely, especially as it remarks that it occurs but rarely, just as in the adjacent station of St. Cyrus; so that we may consider this the most northern point of its distribution, and consider—

Ophioglossum vulgatum, L., as inhabiting Kincardineshire alone.

Pilularia globulifera, Auct. Kincardineshire, Loch of Drum.

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* See Phyt. vol. i. p. 510, when *Pilularia* is printed *Pilularial.*

Isoetes lacustris, omn. East end of Loch of Drum, and in the loch in the Corry of Loch Call, at the head of Glen Callater, Aberdeenshire.

Lycopodium clavatum, omn. Common in both Aberdeenshire and Kincardineshire.

Lycopodium annotinum, L. Alpine parts of Aberdeenshire, and only in the higher mountains. It appears to be most common and in fine condition in Moray, which lies far to the east of the Cairngorums, which Hooker considers to be its head-quarters. Said to occur east of Mount Battock, Kincardineshire.

Lycopodium selaginoides, omn. More frequent in the higher parts of Aberdeenshire than further down, though of not unfrequent occurrence in Aberdeenshire in lower altitudes. It is frequent in Strachan, Kincardineshire.

Lycopodium alpinum, omn. Not unfrequent in the hilly parts of Kincardineshire, and also abundant in Aberdeenshire.

Lycopodium Selago, Beauv. Frequent in both counties.

Equisetum arvense, L. Common.

Equisetum sylvaticum, L. Frequent.

Equisetum limosum, L. Common in wet places.

Equisetum palustre, L. Common.

Equisetum hyemale, L. North bank of the Dee at Drumoak and Banchory, and on a bank further south in the latter parish, Kincardineshire.

Equisetum Mackaii, Newn. Banks of the Dee, Upper Banchory, Kincardineshire.

Equisetum variegatum, Schlech. North bank of the Dee at Drumoak, and on Links, south of Newburgh, Aberdeenshire. In Kincardineshire it occurs, chiefly as the var. *Wilsoni*, on the south side of the Dee at the railway-bridge.

BOTANICAL SKETCHES

From Reading, Caversham, Whitechurch, etc.

By W. P. *and* A. I.

In bygone times there was but *one* high-road from London to Reading; now there are *three*. The straightest, and consequently the shortest, route is at present by the Great Western Railway, from Paddington station; the next in point of convenience is by the London and South-western, from Waterloo station; and the last, but not the least, is by the London and South-eastern line. Twenty years ago it would not have been believed that passengers from the west end of London would go to Reading by London Bridge, Croydon, Reigate, Dorking, Guildford, and Farnborough; yet such has been the route of many travellers during the last eight or ten years. For most botanists the Great Western line is preferable, being shorter, and consequently speedier than any other road. The best part of the upper portion of the Thames Valley lies about ten miles further than Reading, and the Great Western line alone affords access to this. Streatley has long been celebrated in our botanical annals; Goring has recently been noticed by geologists as that portion of the Thames basin which has been fissured by what geologists call a great convulsion, or cataclysm, which occurred in some geological period or other, nobody knows how many thousands of ages ago. The river flows through this gap, which separates the Chilterns and Oxfordshire downs on the north side of the valley, from the Berkshire downs, curiously enough called in some parts the North Downs, because they are on the south side of the river (!). These latter extend from this point by Farnham, Guildford, Dorking, Reigate, Westerham, Maidstone, and Gravesend, again to the Thames, ending in the Essex chalk, about Grays, Purfleet, etc., which is only separated from the Kent chalk-hills by the river. This tract of country on both sides of the river Thames from Reading to Oxford has long been celebrated as one of the richest botanical *fields* in England, South Kent scarcely excepted. We were too late for the Orchids, as will appear from our short list;—not short if the smallness of the area traversed be considered; yet small when compared with the botanical fertility of the tract.

On leaving the railway station, and on going along the road thence to Caversham Bridge and village, *Erysimum cheiranthoides* was observed on rubbish on the right-hand, but it also occurred here and there in many fields through which we passed; and on the left, abundance of *Geranium pratense*, beautifully in flower and fruit; also *Symphytum officinale*, both the white and purple varieties; *Humulus Lupulus* and a *Brassica*, probably *B. Rapa*,* which abounds in the lower portion of the Thames Valley. In the ditches on both sides of the road grew *Butomus umbellatus*, etc. From Caversham Bridge there was a delightful view of the aquatic vegetation of old Father Thames. The magnificent white Water-lily and her somewhat less fair sister, the yellow beauty, covered large portions of the placid, almost motionless, streams, with their broad, shining, shield-like leaves; while the flowers, open in the bright and warm sunshine, reposed in queenly state on the ample green leaves, spread like an emerald carpet over the deep waters. *Sagittaria sagittifolia* (Arrow-head) was there too, with leaves whose blade, from the basal lobes to the apex, was not much, if any, short of twelve inches long, on footstalks we do not know how many fathoms long, for they were mostly under water. The flowers appeared to us nearly as grand as the aquatic Liliaceous plants that ornament the miniature lakes in the Crystal Palace at Sydenham. *Œnanthe Phellandrium* (Water Dropwort) was in full flower, and presented many a bright white patch in the midst of the luxuriant green herbage which fringed the banks and islets of this noble river. The *Scirpus lacustris* (Bullrush) bent gracefully from the surface, and formed a natural curve, from which Hogarth's celebrated line of beauty might have been derived.

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* This plant, whether *B. campestris*, *B. Rapa*, or *B. Napus*, abounds in the Thames Valley, and is described in the floral appendage to the 'Phytologist,' as *B.*

There was here a good opportunity of studying the distinctive characters of the two Water-lilies, derivable from the leaves. Of course we had no need to apply this, because both plants were in flower; but it has been somewhere or other recorded of a great botanist, who, in writing to a brother sage, informed the latter that he had observed the Water-lily in a certain locality, but he did not know which, because the plants were not then in flower. The leaf of the *Nuphar*, the yellow sort, is more elongated than that of the white, and it is always more or less pointed. The leaf of the queen of British aquatics—is it needful to write the white Water-lily?—is rounded in its outline, and *not* pointed. The divergence of the lobes is not a very reliable characteristic—*pace* the writer in the 'Athenæum,' who says that *reliable* is not useable in an active sense. In the churchyard of Caversham, *Verbascum nigrum* was not scarce. In the time of Violets, the *V. odorata* is plentiful. We were here on the 13th of July, in the

Rapa, but Mr. Syme calls it, in the 'Phytologist,' vol. iv. p. 859, *B. Napus*. *Discrepant doctores.*

Dog Days, when Violets had long disappeared. In a cornfield close to Caversham, where there is a path,—and footpaths are not very common here,—*Veronica Buxbaumii* was not unfrequent among the green Barley. *Petroselinum segetum* was scarce, but visible, and the British form of Venus's Looking-glass (*Prismatocarpus*) was common. A few plants of Penny-cress (*Thlaspi arvense*) were seen in a turnip-field further on. *Plantago major,* with a leafy spike, was observed in a lane where *Campanula Trachelium, Nepeta Cataria, Conium maculatum, Verbascum nigrum,* and *V. Thapsus* were observed here and there. Where *V. nigrum* grows at all, it is always (?) more plentiful than *V. Thapsus.* Its range or area is seven, and the range of *V. Thapsus* is sixteen. It is found in seven of the eighteen botanical provinces into which Great Britain is divided, and the latter in sixteen of them. Notwithstanding this, from observation in many other places, as well as here in Oxfordshire, it is inferred, that if a census of the individuals were taken, there would be found a hundred individuals of *V. nigrum* for every *one* of *V. Thapsus.* In Clent, Worcestershire, *V. nigrum* was about as plentiful as the Foxglove; here it was infinitely more so. The Foxglove was not very plentiful in the area we traversed this day (the 13th July). The *V. nigrum* was very abundant. A little way from Mapledurham we lighted on a fine patch of *Linaria repens,* the only place where we saw this rare plant in this day's botanizing.

Here we diverged from the lane, and went up a rather steep wood, or hanger, as these steep woods are called in some parts of the country, in hopes of meeting with *Paris quadrifolia.* In this hope we were disappointed. But we found on the margin of the wood, by the side of cultivated land, several plants of *Orchis pyramidalis* in fine condition, also of *Campanula glomerata, Gentiana Amarella,* and *Carlina vulgaris.* The cornfield adjoining was nearly full of *Iberis amara,* several with lilac flowers. *Orobanche minor, Carduus nutans,* and *Onobrychis sativa* were also adjoining. We then struck through some woods for Whitchurch, and in the deep and shady parts observed *Monotropa Hypopitys* and *Listera Nidus-avis.* In a little hanger not far from Whitchurch, *Hypericum montanum* and *H. hirsutum* and other interesting plants were seen. The banks hereabout produce *Scabiosa Columbaria, Dipsacus sylvestris,* and *Pimpinella Saxifraga.* On old walls about Whitchurch, *Corydalis lutea* and *Sedum album* were not uncommon. This finished our day's work, and was by us considered as a very successful day's ramble, for it was a ramble in every sense of the word. But it exemplifies what has often been said, though it may perhaps have been unwritten or unprinted, that "a botanist is never out of the way, or he never loses his way." This of course refers exclusively to his botanizing walks. He may lose his way at Seven Dials or in the purlieus of Spitalfields, just as any other ordinary mortal occasionally does; but he is generally too good a judge to be misled or to be deceived about his route, in the country, when he is in search of plants.

This tract offers no ordinary attractions to the botanist, for it is beautiful as well as productive. The fens of Lincoln are productive, but not beautiful; this is both fertile and charming. It has another attraction—it may be reached at a small outlay of capital. An investment of two shillings will produce a ride of 128 miles, going and returning, through a lovely region, and give the invester the means of getting for his herbarium some of the very choicest of the floral treasures of our isle.

NOTES ON THE FLORA OF BRAEMAR, ABERDEENSHIRE.

By JOHN BARTON.

We now leave the wooded valley of the Dee, with the sequestered mountain-glens diverging from it on either side, and ascend far above the haunts of men into a region of wild and solemn grandeur,—the home of the dotterel, the snow-bunting, and the ptarmigan, the red-deer and the mountain hare,—but rarely disturbed by a human footstep during the long winter and spring months, and even during the most favourable seasons of the year seldom traversed by any but the keeper or the deer-stalker, the adventurous naturalist, or perhaps now and then a stray tourist. I have more than once ranged those mountain solitudes for eight or ten hours at a time, without encountering a single human being; rarely even did we hear the familiar home-like sound of the tinkling sheep-bell; for miles and miles round the country is one vast deer-forest; and, as a general rule throughout the Highlands, wherever deer are preserved, there everything else of animal kind disappears to make way for them.

We shall find the mountains of Braemar divide themselves conveniently into three distinct groups:—1. The Ben-na-muic-dhui or Mona-rua range, extending from that vast group which encircles round the sources of the Dee, as far as Ben Avon and Little Craig-an-dal.—2. The range to which Macgillivray has given the name of the Mica-slate tract, extending from Scarsach and Cairn Eelar, the two westerly extremities of Aberdeenshire, as far as Glen Callater eastward.—3. The Lochnagar group, which, as well as the first-mentioned, consists entirely of granite.

As regards elevation, the Ben-na-muic-dhui range is considerably the loftiest, the principal mountains having been computed by the Ordnance Survey at the following heights:—

Ben-na-muic-dhui* . . .	4295 feet.
Braeriach	4238
Cairntoul	4225
Cairngorm	4090
Ben-na-buird	3851

Lochnagar, on the other hand, comes rather below the last of those just enumerated, its summit being only 3789 feet above the sea-level. Its isolated position however, and peculiar grandeur of outline, justly place it, in point of relative importance, as well as interest, at the head of all the other mountains in Braemar excepting perhaps Ben-na-muic-dhui. In the second group, Glass Meal, the loftiest point along the whole range, is computed at 3501 feet.

It is difficult to say which of these three several groups is most rich in its botanical products, as will be seen by the appended list; they each include about an equal number of rarities, some few apparently confined exclusively to one or other district, but the majority distributed generally over the entire area. The first of the three has as yet been far less searched than the other two, so

* The long-disputed question as to whether this mountain or Ben Nevis rightly enjoys the reputation of being the loftiest point in the British Isles, has been finally settled this summer by a fresh series of levels taken by the Ordnance Surveyors, which has resulted in fixing their respective heights as follows:—Ben Nevis, 4406·31 feet; Ben-na-muic-dhui, 4295·73 feet.

I must be permitted to enter my protest here against the barbarous way in which the name of this latter mountain is so commonly murdered in Guide-books and Gazetteers,—I suppose, because *Mac* is a common Scotch prefix. English, and perhaps Scotch people too, think *Ben-mac-dhui* must be right; but they would perhaps be surprised to learn the true meaning of the name, which is "*the hill of the black sow*," *Muic* being the Gaelic for *sow*, and *dhui* or *dhû* for *black* or *dark*.

that it is quite possible it may eventually prove the richest of all, and that more careful hunting will reveal many more of those rare plants formerly supposed to be confined solely to the other two districts,—just as the keen eyes of a Backhouse and a Balfour have already discovered *Saxifraga rivularis* on Ben-na-buird, and *Carex rupestris* and *Astragalus alpinus* on Craig-an-dal.

In beginning however a more detailed account of the plants which characterize each of the above groups, it must be premised that the actual area occupied by most of the rarer species given in the list is in itself very limited. We must not expect to find such comparatively common plants even as *Saxifraga oppositifolia* or *Silene acaulis* meeting us at every step as soon as we ascend into the loftier regions, nor are they in any part so universally abundant as we have found *Alchemilla alpina, Polygonum viviparum, Arbutus Uva-ursi,* etc., to be lower down in the valleys; while *à fortiori* the localities of the rarer plants, as *Astragalus alpinus* and *Dryas octopetala,* are very restricted indeed. It is true there are a few species which we find generally distributed as soon as we attain a certain elevation, and whose altitudinal limits are well comprised within Mr. Watson's arctic zone of vegetation, such as *Rubus Chamæmorus, Epilobium alsinifolium* and *E. alpinum, Gnaphalium supinum, Azalea procumbens, Betula nana, Vaccinium uliginosum, Salix herbacea, Polypodium alpestre, Lycopodium annotinum,* and some few others; but all these are plants of the heathy moors, and do not need a rocky soil to vegetate and flourish on, like the Saxifrages, *Silene, Thalictrum,* etc.

The following list enumerates all the species which have as yet been discovered, to my knowledge, in the mountainous district of Braemar; at a rough estimate, their lowest altitudinal limit is about 2500 feet, that is to say, we shall rarely find any of the species named at a lower elevation than this. I have marked with an asterisk those plants which frequently, and indeed generally, descend below this limit. The numbers prefixed to the several localities refer to the three districts as given above, within which they are included.

Thalictrum alpinum. 1. Cairntoul, Ben-na-buird, Little Craig-an-dal. 2. Corry of Loch Ceander.

**Arabis petræa.* 1. Cairntoul, Braeriach, Glen Dee, Linn of Cuaich (1190 feet), banks of the Dee below Invercauld (1030 feet).

Cochlearia officinalis. 1. Cairntoul, Ben-na-buird. 2. Corry of Loch Ceander. 3. Lochnagar.

Silene maritima. 1. Cairntoul, Braeriach.

Silene acaulis. 1. Cairntoul, Braeriach, Ben-na-muic-dhui, Ben-na-buird, Craig-an-dal. 2. Glen Callater. 3. Lochnagar.

Cerastium latifolium. 2. Corry of Loch Ceander, ascent of Glass Meal. (Mr. Backh. Phyt. iii. 770.) Cairntoul!

Cerastium alpinum. 3. Lochnagar.

Cerastium trigonum (Stellaria cerastoides, *L.*). 1. Cairntoul.

Astragalus alpinus. 1. Little Craig-an-dal.

Dryas octopetala. 1. Little Craig-an-dal.

**Alchemilla alpina.* *Passim.*

Sibbaldia procumbens. 1. Cairntoul, Braeriach, Ben-na-buird. 2. Ascent of Glass Meal. 3. Lochnagar.

**Rubus Chamæmorus.* 1. Little Craig-an-dal (in fruit). 2. Morrone (in fruit).

Epilobium alsinifolium. 1. Head of the Sluggan, in a rut. 2. Glen Ey, Glass Meal, Corry of Loch Ceander.

Epilobium alpinum. *Passim.*

Sedum Rhodiola. 1. Cairntoul, Braeriach. 2. Corry of Loch Ceander. 3. Lochnagar.

**Saxifraga stellaris.* *Passim.*

Saxifraga rivularis. 1. Cairntoul, Ben-na-buird (three stations). 3. Lochnagar.

Saxifraga cæspitosa. 1. Ben-na-buird.

Stellaria hypnoides. 2. Corry of Loch Ceander.

Saxifraga nivalis. 1. Braeriach. 2. Glen Callater.

Saxifraga oppositifolia. 1. Cairntoul, Little Craig-an-dal. 2. Corry of Loch Ceander, Glen Callater (east side).

**Saxifraga aizoides.* *Passim.*

Cornus suecica. 1. Cairntoul. 2. Glen Callater. (Mr. Backh. Phyt. iii. 443.) Rocks above the Dhuloch (Glen Muic). [illegible]! [illegible]!

Mulgedium alpinum. 3. Lochnagar.

Erigeron alpinus. 1. Cairntoul. 2. Corry of Loch Ceander. 3. Rocks above the Dhuloch.

Gnaphalium supinum. *Passim.*

Saussurea alpina. 1. Cairntoul, the Sluggan, Little Craig-an-dal. 2. Glen Callater, east side.

Hieracium Halleri. 1. Cairntoul. 2. Corry of Loch Ceander. 3. Lochnagar.

Hieracium nigrescens. 1. Braeriach, above Loch Flagan. 2. Corry of Loch Ceander. 3. Lochnagar. Cairntoul

Hieracium alpinum. 2. Corry of Loch Ceander. 3. Lochnagar.

Apargia Taraxaci. 3. Lochnagar. (Probably also in all the other districts.)

Azalea procumbens. *Passim* at 3000 feet and upwards.

Veronica alpina. 1. Cairntoul, Ben-na-buird, Little Craig-an-dal. 2. Corry of Loch Ceander, ascent of Glass Meal. 3. Lochnagar.

Veronica serpyllifolia, var. *humifusa.* 2. Ascent of Glass Meal.

Veronica saxatilis has never yet been discovered, I believe, *in* the Braemar, although it is extremely abundant in Canlochen Glen, just without it.

**Pinguicula vulgaris.* *Passim.*

Armeria maritima. 1. Ben-na-buird, Cairntoul, Little Craig-an-dal.

**Empetrum nigrum.* *Passim.*

**Betula nana.* 1. Glen Cuaich, the Sluggan. 3. Lochnagar.

Salix arenaria. 2. Glen Callater. 3. Lochnagar.

Salix myrsinites. 1. Cairntoul. 2. Corry of Loch Ceander. 3. Lochnagar.

Salix lanata. 2. Corry of Loch Ceander.

Salix reticulata. 2. Corry of Loch Ceander.

Salix herbacea. 1. *Passim* on the Ben-na-muic-dhui range. 2. Glass Meal. 3. Lochnagar.

Tofieldia palustris. 1. Little Craig-an-dal. 2. Glen Callater.

Juncus bifidus. 1. Ben-na-muic-dhui, Cairntoul, Ben-na-buird. Little Craig-an-dal. 2. Corry of Loch Ceander. 3. Lochnagar.

Juncus triglumis. 1. Cairntoul, Ben-na-buird, Little Craig-an-dal. 2. Corry of Loch Ceander.

Luzula spicata. 1. Cairntoul, Braeriach, Ben-na-muic-dhui, etc. 2. Mts. of Glen Ey, Glen Callater. 3. Lochnagar.

Luzula arcuata. 1. Cairntoul, Ben-na-muic-dhui. 3. Lochnagar.

Carex rupestris. 1. Little Craig-an-dal. 2. Corry of Loch Ceander.

Carex leporina. 1. Cairntoul, Braeriach. 3. Lochnagar.

Carex Persoonii. 2. Corry of Loch Ceander. 3. Lochnagar.

Carex Vahlii. 2. Corry of Loch Ceander. (Dr. Dickie.)

Carex rigida. *Passim.*

Carex saxatilis. 1. Cairntoul. Little Craig-an-dal.

Carex panicea, var. *vaginata.* 1. Cairntoul, Ben-na-muic-dhui. 2. Glen Callater. 3. Lochnagar.

Phleum commutatum. Cairntoul, Braeriach, Ben-na-buird. 2. Corry of Loch Ceander. 3. Lochnagar, in both corries.

Alopecurus alpinus. 1. Braeriach. 2. Glen Callater. 3. Lochnagar.

Aira alpina. 1. Cairntoul. 3. Lochnagar. [illegible]

Festuca vivipara. Cairntoul, Braeriach, etc. 2. Glen Ey, Glen Callater. 3. Lochnagar.

Poa alpina. 1. Cairntoul, Ben-na-buird. 3. Lochnagar.

Poa minor. 3. Lochnagar.

Poa laxa. 3. Lochnagar.

Polypodium alpestre. 1. Ben-na-muic-dhui, Ben-na-buird. 2. Glass Meal, Corry of Loch Ceander. 3. Lochnagar.

Polypodium alpestre, var. *flexile,* I believe I gathered on the rocky shelves of Ben-na-muic-dhui, ascending from Loch Ann; but the plants were too young to decide anything with certainty at present.

Cryptogramma crispa. 1. Ben-na-buird. 2. Corry of Loch Ceander. 3. Lochnagar.—(This Fern is by no means common on the Grampian Hills, although so abundant in North Wales, and still more so in the English Lake District. I botanized for seven weeks in Braemar without meeting with it at all, and then in only one of the localities given above, viz. Lochnagar, where it grows in the greatest profusion at the foot of the great corry.)

**Polystichum Lonchitis.* 1. The Sluggan.

**Lycopodium annotinum.* 1. Glen Cuaich, Little Craig-an-dal. 2. Glen Ey. 3. Lochnagar.

Lycopodium alpinum and *selaginoides. Passim.*

Equisetum palustre, var. *alpinum.* 2. Ascent of Glass Meal.

The above list is compiled from the various catalogues given in Professor Macgillivray's book, conjointly with my own observations. In the majority of instances I have been able to verify all the Professor's cited localities, but I must make an exception in the case of Cairntoul and Braeriach, on which mountains I have never botanized at all, and also with regard to a few particular species from Lochnagar, Ben-na-buird, and the Corry of Loch Ceander. A mere glance at the different localities given will show what rich botanizing grounds some particular spots are, as Little Craig-an-dal, the Corry of Loch Ceander, etc. It may be worth while to describe those which possess most interest in a botanical point of view a little more in detail.

LATE (EARLY?) FLOWERING PLANTS.

List of Flowers found in blossom in the neighbourhood of Upton and Binstead, near Ryde, middle of December, 1857. *By* Harriet Beisly.

Bellis perennis.
Ranunculus bulbosus.
Primula vulgaris.
Veronica agrestis.
Veronica serpyllifolia.
Linum angustifolium.
Cornus sanguinea.
Tormentilla officinalis.
Potentilla reptans.

Viola canina.
Senecio tenuifolius.
Senecio vulgaris.
Lapsana communis.
Fragaria vesca.
Rubus fruticosus* (also in fruit).
Daucus Carota.
Trifolium pratense.
Prunella vulgaris.
Leontodon Taraxacum.
Lamium album.
Lamium purpureum.
Ulex europæus.
Borago officinalis.
Tussilago Petasites.
Rosa arvensis.
Stellaria media.
Geranium robertianum.
Geum urbanum.
Clinopodium vulgare.
Ajuga reptans.
Erythræa Centaurium.
Anagallis arvensis (stalk thirty inches).
Stachys arvensis.
Agrostemma Githago.
Helminthia echioides.
Hypochœris radicata.
Centaurea nigra.
Euphorbia Peplus.
Euphorbia exigua.
Achillea Millefolium.
Chrysanthemum Leucanthemum.
Sonchus oleraceus.
Scabiosa Succisa.
Echium vulgare.
Sagina apetala.
Angelica sylvestris.
Cytisus scoparius.
Pyrethrum inodorum.
Sinapis arvensis.
Hypericum Androsæmum.
Serratula tinctoria.
Sison Amomum.
Apium graveolens.
Myosotis arvensis.
Cerastium viscosum.

Additions to list of plants gathered in December :—

Senecio Jacobæa.
Chlora perfoliata.
Hedera Helix.
Hypochœris glabra.
Euphorbia Helioscopia.
Euphorbia platyphylla.
Lonicera Periclymenum.
Mercurialis perennis.
Scabiosa Columbaria.
Veronica polita.

Plants in flower between Blackheath and Plaistow in the first ten days of January, 1858.

Ranunculus acris.
Ranunculus repens.
Capsella Bursa-pastoris.
Sinapis arvensis.
Stellaria media.
Stellaria graminea.
Stellaria Holostea.†
Cerastium triviale.
Geranium robertianum.
Geranium columbinum ?
Rubus fruticosus.
Rubus corylifolius ?
Tormentilla reptans.
Spiræa Ulmaria.‡
Pimpinella Saxifraga.
Æthusa Cynapium.
Sison Amomum.
Cornus sanguinea.
Lonicera Periclymenum.
Bellis perennis.
Maruta Cotula.
Senecio Jacobæa.
Taraxacum Dens-leonis.
Oporinia autumnalis.
Sonchus oleraceus.
Veronica agrestis.
Veronica serpyllifolia.
Lamium album.
Lamium purpureum.
Stachys arvensis.
Euphorbia Peplus.
Euphorbia exigua.
Mercurialis perennis.
Alopecurus agrestis.
Dactylis glomerata.
Poa annua.

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* The first present I had this year was a monster Bramble of the genus *Rubus*, twenty-three feet in length, the growth of the past season. In London I suppose this production would be seasonably called the Leviathan Bramble. It was cut in Quarr Wood, by a friend of ours, and I intend to hang it up as an emblem of vegetable beauty. I doubt not this Briar would be much admired by Mr. Ruskin, as it is so finely proportioned, and the thorns which stud the surface are beautifully arranged. I wish I could enclose for you to see. It speaks well for the exuberance of Vectis vegetation.

† Going off. ‡ Still in flower on the 3rd, but since killed by the frost.

List of Wild Plants in flower in the neighbourhood of Hitchin, Herts, between the 24th and 31st of December, 1857. By Professor Bentley, F.L.S., etc.

Sir,—I send you the following list of wild plants in flower, as noticed by me in the neighbourhood of Hitchin, Herts, between the 24th and 31st of December, 1857. It forms a remarkable illustration of the continued mildness of the season up to the end of the year, for the list includes both autumnal and spring flowering plants; the former still continuing in flower in consequence of their not having been destroyed by any frost, etc., and the latter flowering at an earlier period than usual from the mildness of the season. Probably some of your readers can furnish you with a more numerous list than the one I send you, which merely contains those plants which I happened to notice in my ordinary walks. I might also state that I saw on Christmas-day a Glastonbury Thorn in full flower, and possessing all the fragrance of our common May-flowering Thorn. I am also informed that Strawberries in flower and fruit, and Raspberries in fruit, were gathered in the open air about ten days before Christmas.

Robert Bentley.

Ranunculus Ficaria.
Ranunculus repens.
Sisymbrium officinale.
Brassica Napus.
Sinapis alba.
Sinapis arvensis.
Capsella Bursa-pastoris.
Viola sylvatica.
Viola tricolor.
Lychnis vespertina.
Stellaria media.
Geranium robertianum.
Ulex europæus.
Fragaria vesca.
Rubus fruticosus.
Geum urbanum.
Pimpinella Saxifraga.
Heracleum Sphondylium.
Anthriscus sylvestris.
Hedera Helix.
Cornus sanguinea.
Senecio vulgaris.
Senecio erucifolius.
Senecio Jacobæa.
Inula Conyza.
Bellis perennis.
Chrysanthemum Leucanth.
Matricaria inodora.
Achillea Millefolium.
Carduus crispus.
Apargia autumnalis.
Leontodon Taraxacum.
Sonchus oleraceus.
Sonchus asper.
Crepis virens.
Vinca major.
Borago officinalis.
Linaria Cymbalaria.
Veronica agrestis.
Lamium purpureum.
Lamium album.
Ballota fœtida.
Primula vulgaris.
Euphorbia Helioscopia.
Corylus Avellana.
Poa annua.

VEGETABLE PHYSIOLOGY.

Vegetable Life in connection with Lower Forms of Animal Life.

There is an observation in one of the papers of the 'Phytologist,' made by the Rev. W. A. Leighton, to the effect that in his endeavour to discover the male organs of fertilization in Ferns, by the aid of the microscope, many singular and interesting sights presented themselves to his eyes.

Bearing this in mind, we see how much there is in the botanical field which would be *discovered* if persons would more closely examine plants under the moderate power of a microscope; and I would earnestly recommend those who delight in this study to look at all they see with *a microscopic eye,*—not only examine the structure of plants, by making sections, both transverse and longitudinal, but also the form of the seeds, the pollen, and the smaller parts of the plant. There is great beauty in the form and structure of these, which cannot be seen *by the naked eye.* Besides, plants afford other objects worthy of observation, and these are often seen when (like Mr. Leighton) we may not be looking for them.

For instance, there are spermatic animalcules of Liverworts and Mosses, which have tails like those of animals, and develope themselves singly in the grains of pollen. The globules are only cells of slime, in which the animalcule forms itself. The cell then disappears, and the animalcules lie curled in the spiral form in the thread of pollen, which bursts in water and releases the animalcule. They at first cling by their tail to the thread, but afterwards swim about freely.

In *Marchantia polymorpha* a single animalcule proceeds from every cell of pollen-mass.

Thuret has observed, in the interior of the anthers (globules) of *Chara vulgaris* and *C. hispida,* flexuose transparent chambered filaments of unequal length, in which are contained animalcules, at first motionless, but afterwards struggle to release themselves. They appeared like a spirally-rolled thread of three to five curves, with two appendages or tentacula of excessive tenuity, which the animalcule agitates with great rapidity.

Rœper has shown that the *Sphagnum obtusifolium* (Bog Moss) contains little openings, into which the animalcule *Rotifer vulgaris,* under favourable circumstances, might enter. Morren observed, with the aid of high magnifying power, that in specimens of *Vaucheria clavata,* found at Everghem, he detected the same animalcule, with its cilia imitating the wheel, etc. The creature buried itself in its prison, descending into the tubes of the plant, and nestling itself in the middle of a mass of green matter.

The above observations show a portion only of the interesting objects to be met with in the parts of plants,—animal life existing in and supported by the vegetable.

The *juices* of plants will also afford subjects for examination, such as crystals and other inorganic deposits. Carbonate of lime is frequently met with in these deposits, between the cells of the parenchyma of the leaves or their ribs, in the ducts of the leaf-stalk and its base. Oxalate of lime is also found in plants, and is seen in the stems of *Cactus,* in transparent crystals. Silex also incrusts many vegetable substances, and its crystals are found on the leaf of the *Deutzia,*—beautiful objects for the microscope.

Other objects of great interest will be discovered *on* plants, namely the parasitical genera of Fungi, and one of these is *Botrytis,* commonly called 'mildew.' The plants consist of little cells, adhering end to end, which lie on the surface of the plant that bears them. From the spores contained in the seed-cases, at the extremity of the cells, the plants are propagated, and their size is so small as to escape vision unaided by glasses; and what seems to the naked eye a thin, brownish-white patch upon a leaf, is in reality a dense forest of such plants. The power of dissemination in these minute plants must be very great, for they attack the fibres of vegetable fabric, linen and cotton, when placed in damp places, and the decayed stems of most plants, decaying apples, and other fruits. They are always superficial, and never intestinal.

The facts stated are, I think, sufficient to induce us to consider more particularly the relation between *animal* life, in its lower forms, and the *vegetable* life; and to discover (if possible) whether the existence of these minute creatures is essential to the *vegetable economy,* and also to observe how wonderfully all vegetables, as they decay, support other forms of vegetable and animal life.

THIRSK NATURAL HISTORY SOCIETY.

Botanical Exchange Club.

The monthly meeting of the Thirsk Natural History Society was held on the evening of Friday, the 8th of January. Mr.

J. G. Baker reported proceedings in the matter of the Botanical Exchange Club, and mentioned various communications which its managers had received. The following botanists were duly enrolled as members, viz.:—

Atwood, Miss, 8, Victoria Place, Bath.
Brewer, J. A., F.L.S., Holmesdale House, Reigate.
Brewer, W., Reigate.
Flower, T. B., F.L.S., Beaufort Buildings, Bath.
Henfrey, A., F.L.S., Heathfield Terrace, Turnham Green, London.
Linnell, John, Jun., Redstone, Reigate.
Lyle, Thos., M.D., 314, High Street, Glasgow.
Salmon, J. D., F.L.S., 174, Strand, London.
Soper, William, Reigate.
Syme, J. T., F.L.S., Gordon Street, Gordon Square.

He also laid before the meeting the following notices:—

Nuphar pumila, Sm.—Mr. T. A. Cox sends specimens from the station in the neighbourhood of Ellesmere, Salop, recorded in 'Phytologist,' N. S. vol. i. p. 127, which quite agree with the plant of the Scotch Highlands. In Britain it has been previously known to occur only in the four counties of Perth, Moray, Argyle, and Aberdeen, so that this is a considerable extension of its range in a southern direction, and an addition to the Flora of England. Upon the Continent its head-quarters are amongst the alpine and sub-alpine lakes of Lapland and Norway. It grows also, but more sparingly, in similar localities in Sweden, Schleswig, and Mecklenburg, and south of the parallel of 53°; has been found amongst the hills of the Black Forest (Baden), Silesia, Lower Saxony, Vosges (France), the canton Zurich (Switzerland), and the vicinity of Salzburg (Austria).

Aremonia agrimonioides, Neck.—This species, which is recorded in the November number of the 'Phytologist,' from two Fifeshire stations, is an inhabitant of the south of Europe. It occurs in several places in Italy, and ascends sparingly into the southern provinces of Germany, but is altogether absent from the Floras of Switzerland and France: so that, unless the plant has been mistaken, in the Scotch localities it is doubtless a casual naturalization only.

Catalogue Raisonné des Plantes Vasculaires du Département de l'Aube. (Tome premier: Paris, Bouchard, Huzard and Baillière, 1856.)—The Aube is one of the central departments of France, made up of portions of the old provinces of Champagne and Burgundy. The nearest frontier is sixty miles south-east of Paris. In round numbers it is sixty miles from west to east, fifty from north to south. Its area somewhat exceeds that of North Yorkshire, but in physical character it more resembles Cambridgeshire, a region with low calcareous hills, well cultivated and plentifully watered. Its streams are the Aube and the Seine, which rise respectively in the departments of the Côte d'Or and Upper Marne, flow from south-east to north-west, and unite at Anglure, just beyond its northern boundary. Its towns are Troyes, Brienne, Arcis- and Bar-sur-Aube, and Nogent- and Bar-sur-Seine.

M. Bourguignat is already known by three conchological publications. The present work is an octavo of 184 pages, and contains an account of the vascular plants of the department, from *Ranunculaceæ* to *Onagraceæ*, including not only the wild species, but also those which are commonly grown in field or garden cultivation. No descriptions are given, but under each indigenous or naturalized species reference is made to the original authority for its nomenclature, and also to the works of Lorey and Duret, Cosson and Germain, Grenier and Godron, and Boreau. Under each. its local name or names and flowering seasons are enumerated, and each is classified under one of the six categories of rarity which the author adopts; and then follows an account of the stations which it inhabits, and an outline of its distribution throughout the department.

In his ideas relative to the matter of specific differences, our author occupies a position intermediate between the extreme analysts and the extreme synthesists. Thus, whilst on the one hand he adopts various species which are not generally acknowledged as distinct in this country,—as for instance *Polygala depressa* of Wenderoth, *Viola riviniana* of Reichenbach, and *Draba præcox* of Stevenson,—on the other, he joins *Erodium Chæropyllum* and *pilosum* to *cicutarium*, and *Viola agrestis* and *segetalis* to *tricolor*.

The book is characterized by care in its preparation and an intelligent appreciation of what geographical botany seeks from one who undertakes to compile a local Flora. I have much pleasure in recommending it to the favourable attention of our members.

Specimens were exhibited of *Nuphar pumila,* from Argyleshire and Shropshire, and a cultivated example of *Aremonia agrimonioides.*

Mr. J. H. Davies laid before the meeting the following notices, in each case exhibiting specimens of the Mosses from the localities mentioned :—

Orthotrichum obtusifolium, Schrad., *O. gymnostomum,* Blytt.—This species, although treated by Bruch and Schimper as an inhabitant of Britain, was unknown as such by our bryologists till 1855, and is not included in Wilson's work. It has been found in Gloucestershire by Mr. Beach, in the neighbourhood of Cheltenham, where it grows on old walls, on an Ash-tree, and on the trunk of an Elm, in the latter case associated with *O. diaphanum* and *Zygodon viridissimus.* Mr. Wilson met with it in South-east Yorkshire, in September, 1855, in a locality to which he gives the following directions.—"Below York, near the river-side (east bank), on an Ash-tree, near the ground, about two and a half or three miles from York, where the river bends towards the west, and where a cartroad leads from a house or farm surrounded by large trees ;" and Mr. Kirk has also had the courtesy to supply me with specimens from another Gloucestershire locality, a solitary Ash-tree, near Mickleton tunnel.

Now that it is satisfactorily established as a British species, it is not unlikely that it may be found in various localities ; and, if sought for at the proper season, what is yet a desideratum, the fruit also. The following description is taken from the 'Bryologia Europæa' :—"Tufts small, pulvinato-cæspitose. Stems half to one inch long, simple or branched dichotomously. Leaves of the branches and lower part of the stem small, elongate, ovate ; upper broader, ovate, spreading, imbricated when dry ; those of the perichætium larger and broader : all concave, margins flat, nerves weak, vanishing considerably below the apices of the leaves. Pedicels short, contracted suddenly into the necks of the capsules. Capsules mostly submerged, oblong-pyriform, long-necked, with eight faint striations, when dry, contracted below the mouth, 8-plicate. Operculum convex from the base, acutely conical. Calyptra campanulate, covering half the capsule, acuminate, irregularly plicate, pale brown above, shortly lobed and paler below, naked or slightly hairy, roughish externally ; outer peristome of eight bigeminate teeth, longitudinally perforated or divided, inner of pale-yellow linear cilia. Male plants in denser tufts, female more graceful and more branched in habit, gemmiparous; flowers terminal. On the Continent it grows in open places upon the trunks of trees, especially Walnut, Poplar, Willow, and Linden, throughout the whole of Scandinavia, Germany, France, and Switzerland. British examples may be obtained by the members of the Club upon application.

Hypnum hians, Hedw.—Mr. Mitten has recorded, in the August number of the 'Phytologist,' his discovery, in Sussex, of this species, which is new to Europe. Mr. Mills sends it from the neighbourhood of Hurstperpoint.

Hypnum speciosum, Brid., North Yorkshire.—This I have lately met with in fruit in the Holmes, near Thirsk. Yorkshire is the second English and third British county in which it has been ascertained.

THE AFRICAN EXPEDITION.

The exploring party under Dr. Baikie, who left this country last summer with the view of opening a trade with the nations on the banks of the Quorra and Binue, appears to have been very successful in conciliating the goodwill of the natives. In many instances, as we learn by a letter to a friend of ours from the botanist to the Expedition, they have treated the strangers not only with forbearance, but with kindness and hospitality. Mr. Barter, the botanist, writes evidently in good spirits about the acquisitions to the herbarium and the success of the undertaking. The plants collected chiefly belong to the Orders *Leguminiferæ, Compositæ, Gramineæ, Filices, Labiatæ,* etc. etc. The number of species is about 800; several new Palms are among the number.

We are glad to see that Mr. Barter does not forget the 'Phytologist,' and we may expect to see its pages ere long enriched by a communication from "Afric's burning sands."

The loss of the little steamer will soon be supplied by another, now on its way, if not actually arrived. The loss of part of Mr. Barter's acquisitions, it is to be expected, will be soon repaired, if that zealous and successful botanist continues the enjoyment

of the good health which we rejoice to hear he is enjoying. Our readers may expect further details in due time.

Review.

Retrospective Criticism.

Monsieur,—J'ai reçu la lettre que vous avez bien voulu m'adresser en date du 31 Octobre, 1857, et j'ai attendu pour vous répondre d'avoir également reçu le numéro du journal 'Natural History Review,' qui devait passer par une autre voie.

Cette communication, dont je puis maintenant vous remercier, m'a fait voir que pour les revues d'ouvrages publiés il en est un peu comme des portraits : un peintre ne parvient pas toujours à donner une ressemblance parfaite, mais quand un portrait assez bon est copié par un autre artiste qui n'a pas vu la personne représentée, il est rare que le second portrait soit satisfaisant. Lorsque j'ai lu l'article du 'Natural History Review,' je l'ai trouvé meilleur que je n'aurais supposé d'après l'extrait que vous en aviez donné. Il y a même des faits venant de l'auteur (signé W. H. H.) qui méritent d'être signalés, puisque l'écrivain a voyagé dans les pays dont il parle. Je fais allusion aux exemples d'espèces dont l'habitation est extrêmement restreinte, quoique vivant sur des continents ou de grandes îles où leurs graines ne rencontrent pas d'obstacles. Mr. W. H. H. a ajouté plusieurs exemples remarquables à ceux que j'avais cités.

Comme il a donné en *treize* pages une analyse d'un ouvrage de *treize cents* pages, il ne pouvait pas entrer dans des détails suffisants pour faire comprendre aux lecteurs quelques points. L'extrait du 'Phytologist,' en *quatre* pages, devait présenter encore bien plus d'omissions regrettables. Ainsi, outre les points dont j'ai parlé dans ma précédente lettre, je remarque cette phrase copiée dans le 'Phytologist :' "A list is given, after Mohl, of species which are characteristic of primitive rocks, and of those which only occur in calcareous soil." C'est vrai ; mais cette liste n'a été dressée que pour donner sur chaque espèce des renseignements dont Mohl ne parle pas et desquels il résulte que, dans le cas où l'une de ces espèces existe hors de Suisse, elle n'est plus limitée dans les autres pays aux sols primitif ou aux sols calcaires comme sur nos Alpes. Ainsi le résultat de ces recherches conduit à une conclusion exactement contraire à celle qu'on pourrait supposer d'après la phrase trop abrégée des deux Revues.

Ces réflexions ne m'empêchent pas de reconnaître le mérite de plusieurs des passages de l'article publié à Dublin, et d'être flatté de la bonne opinion que l'auteur a conçue de mon ouvrage en général, de même que des expressions bienveillantes et polies dont il s'est servi. Je reconnais aussi avec plaisir votre exactitude dans l'extrait de l'extrait.

Si vous publiez ma première lettre, il conviendra peut-être de donner également celle-ci, mais pour l'opinion que les lecteurs du 'Phytologist' peuvent se former sur ma 'Géographie Botanique,' je compte bien plus sur l'examen qu'ils peuvent faire, ainsi que vous, Monsieur, de l'ouvrage lui-même, que sur des explications détachées à l'occasion d'un article de la Revue.

J'ai l'honneur d'être, Monsieur, avec la considération la plus distinguée,

Votre très-dévoué,
ALPH. DE CANDOLLE.

Genève, 7 *Décembre*, 1857.

J'ai l'honneur de vous adresser par la poste séparément un petit opuscule sur les Santalacées, publié un peu avant le vol. xiv. part 2, du 'Prodromus' qui vient de paraître.

BOTANICAL NOTES, NOTICES, AND QUERIES.

CREPIS BIENNIS.

To the Editor of the 'Phytologist.'

Sir,—Are you aware that there are two representations of *Crepis taraxacifolia* in English Botany and Supplement? The No. 2929 represents the latter, and 149 professes to represent *C. biennis*, but in reality is only an indifferent figure of the same. Mr. Babington quotes it in his description of *Crepis biennis*, but with hesitation. If this celebrated botanist had compared the plant with the figure which professed to represent it, he would not have quoted it. The Kentish plant has long been well known to London botanists, but the more recently-recognized species has been sent to the London Botanical Society labelled as *C. biennis*, by botanists of considerable eminence. CENSOR.

[The Editor is not ignorant of the fact stated by Censor, and he hopes

that Mr. Sowerby, to whose family and to himself we are indebted for the only complete illustrated Flora in existence, will be so obliging as to supply the deficiency. It is true that there is no illustration of *Crepis biennis* in any British publication. If any Kentish botanist will send us a living plant of the genuine species, we will nurse it until it is in a fit state to be engraved, which we have no doubt Mr. Sowerby will gladly undertake to do, and thus increase the obligation British botanists owe to him and to his family.]

ALLIUM BABINGTONII.

During a recent visit to the South Isles of Arran, county Galway, made in company with a party having a very different object from botany, and during which I was therefore unable to pay much attention to that science, I saw plenty of the *A. Babingtonii* growing in the deep crevices of the limestone rock of which the islands consist. It seems to flourish especially in the damp climate of that district. It is a remarkable fact that this *Allium* will not grow in the hot and dry soil of the Cambridge Botanical Garden, where its allies *A. Ampeloprasum* and *A. Porrum* flourish. In that garden it will not grow without the shade of trees, which render the soil constantly damp. This seems to me to show that the plant is probably a distinct species from those of its allies. I much doubt the correctness of the statement that *A. Ampeloprasum* is native to those isles of Arran. C. C. BABINGTON.

SONCHUS PALUSTRIS.

As is stated by Mrs. Russell, I saw the specimen of *Sonchus palustris* gathered by Mr. T. Butler in the marshes near to the river Waveney, and have no doubt of its being the true plant. Mr. Butler very properly kept the exact station of so rare a plant secret. C. C. BABINGTON.

CYCLAMEN HEDERÆFOLIUM.

All the specimens which I have seen of *Cyclamen* from the borders of Kent and Sussex, belong to the *C. hederæfolium*. I know nothing of the Nottingham plant mentioned by Q. in page 280 of the 'Phytologist.'

C. C. BABINGTON.

GERANIUM MOLLE.

"The herbage has a perceptible musky fragrance on a warm day, in addition to its usual rather strong odour, and which is retained for some time after the plant is gathered.

"*Geranium pusillum* so very closely resembles the preceding as to be easily overlooked for that species. The following characters will be found to distinguish *G. pusillum*:—Stems generally redder in colour, the pubescence far shorter, finer, and more or less deflexed; leaves more deeply cleft; flowers much smaller, except in var. β of *G. molle*, more inclining to blue or purplish, their pedicels, I think, rather longer in proportion to the peduncles, and more suddenly bent or at a more acute angle immediately beneath the flower than in *G. molle*, in which the curvature is lower down on the pedicel and more considerable in amount of flexure; petals much narrower, wedge- rather than heart-shaped, with longer, more slender claws, simply three- (not, as in the last, sub-five-) nerved, appearing from their greater narrowness to stand widely apart, usually about the length of the calyx, rarely considerably (nearly twice) longer; sepals somewhat less obtuse; anthers five, the others (always?) abortive; styles pale, erect, not (as in *G. molle*) spreading, scarcely so long as the stamens; capsule very downy, not wrinkled, when unripe with a broad, conspicuous green keel down the centre, not found in *G. molle;* seeds oblong, subreniform, slightly compressed, dull brown, smooth.

"The herbage is destitute of the faint, musky smell of *G. molle* when fresh gathered."—*Fl. Vect.*

From 'The Times.'

Sir,—I beg to send a list of those flowers in bloom I gathered in my garden on the 29th of December:—Roses, Scarlet Geranium, Sweet-scented Geranium, *Fuchsia corallina*, Yellow Coronilla, Yellow Jasmine (*nudiflora*), Italian Honeysuckle, Myrtle (in bud), *Gentianella*, *Auricula*, *Polyanthus*, *Polygala buxifolia*, *Chrysanthemum*, Stock, Violets, Mignonette, Heath, Red Pheasant's-eye, *Coriopsis* (*Berberis Darwinii*), Laurustinus, *Arbutus* (in flower and berry). A few days earlier I might have had a double Lilac Primrose in my nosegay; and I must add that my Camellias are covered with buds, which are swelling rapidly and promise abundance of flower, and the pretty little shrub *Pernettya mucronata* is in great beauty, with its numerous bright lilac berries.

In gardens near mine the purple *Veronica solifolia* is in full flower. I saw a large orange-butterfly in the garden twice last week, and so mild is the season that a Summer Rose (Boursault) is in bud. E. M.

Bournemouth, Poole, Dec. 2.

FLORA OF THE PYRENEES.

From the 'Dublin Natural History Review.'

"The season was getting too late for general botany, and the neighbourhood of St. Sauveur did not supply me with many novelties. One species of Fern however, the *Asplenium fontanum*, grew in abundance within a few hundred yards of the hotel, and the beauty and rarity of this elegant Cryptogam would well repay the collector who visited St. Sauveur with no other object than to procure it from its native haunts. It is a doubtful native of Britain, and is omitted by Newman in his last edition of the British Ferns. Other authors have admitted it, but with hesitation, into the British Flora; and young specimens of several of our ordinary *Asplenia* bear so close a resemblance in general form to the present plant, which in its native state fruits in profusion, and has a very characteristic habit, that it is probable that the specimens said to be collected in a few English and Irish localities were only immature fronds of larger species. Specimens thus referred to *A. fontanum*, have been collected in the immediate neighbourhood of Cork, but, not presenting any appearance of fructification, their claim to be admitted under this species must, for the present, be rejected.

"The Flora of the country around Bagnères is said to be rich in species, the Pic du Midi and Mont Hyeris being especially productive in rare and beautiful plants. The season was however too advanced for successful herborization, and I was forced to content myself with noting the few flowers in the hedgerows and banks around. *Saponaria officinalis* was conspicuous everywhere, and *Erica vagans* might be found in great abundance on the slopes of Mount Olivet that overhung the town. The path from the Salut through the woods, at the base of Mount Olivet, was lined with a profusion of *Wahlenbergia hederacea*, a delicate little *Campanula*, not uncommon in our Irish bogs, but which here occurred on *dry* clayey banks."

DERIVATION OF BOTANICAL NAMES.

I frequently see in the 'Phytologist' queries as to the etymology of particular botanical names. In the last number somebody asks for the derivation of *Berberis*. These correspondents are probably not aware that 'Paxton's Botanical Dictionary' (in most cases) will afford an answer to such inquiries, as it gives the origin of the generic names of all the plants described in it. F. C.

ARUM MACULATUM.

In Upper Hesse (Germany) the *Arum* is frequently observed in woods near *badgers' holes*. The badger is said to eat the berries of the plant, and the undigested and discharged seeds spring up near the abodes of these animals. This is not an exact counterpart to the common notion that the *Mistletoe* is propagated by the missel-thrush. Hence the homely proverb, "Turdus malum sibi cacat" — "the thrush evacuates something which will be his destruction;" an allusion to birdlime made of the fruit of the Mistletoe. The badger, on the other hand, by eating the berries of the *Arum*, prepares provision for seasons yet to come. It is said that the same relation exists between the wolf and the *Belladonna*, viz. that the wolf eats the berries of this poisonous plant. *Credat Judæus!—From the Oberhessische Flora, by Dr. C. Heldman.*

AIZOIDES, DERIVATION OF.

Sir,—Can any of your readers inform me of the true derivation of *aizoides?* I presume it to be from the Greek ἀειζωείδης, viz. 'resembling the ἀειζῶον, or Houseleek.' But is it nothing more than a singular coincidence that the only two plants to which this specific is given, so far as I am aware, viz. *Draba* and *Saxifraga aizoides*, have both *yellow* petals? Has that species of Houseleek which the word ἀειζῶον is supposed to represent, truly *yellow* petals, or does the resemblance consist merely in the fleshy nature of the leaves? J. B.

NAMES OF PLANTS.

The name *Service*, applied to the tree and its fruit, is, I suspect, derived from *Cerevisia* or *Cervisia*, a liquor prepared from grain (*cerealia*) by the ancient Gauls, and analogous to our beer, of which beverage a kind has been brewed time out of mind from the berries of some tree of the present genus, called *Sorbus* by the ancients, "quod ejus succum *sorbere* solent." The Welsh prepare a similar drink at this day from the fruit of the Mountain Ash, called *Sorbus sylvestris* by many of the older writers on plants.

ORCHIS.

If my memory serves me rightly, I have seen it stated in these pages that "Long-purples" was the English expression for one at least of our Orchids. Be this as it may, it appears to me somewhat anomalous that this word Orchis (in common with a few other generic names) is left in our Floras without any English translation or equivalent term. That compilers of these works should have scrupled to give the bare translation of the word as understood by the ancients will appear by no means strange to any one who takes the trouble to consult his Lexicon on the subject. Pliny characterizes the plant as one "radice testiculis simili," and the common people of this country use several names which are but free translations of his description. But there are exceptions to every rule, and accordingly I was considerably surprised to find the word 'Beldairy'—a much more euphonious and less offensive synonym for Orchis than I had hitherto met with—in common use in the Buchan district of this shire.

Aberdeen. W. S.

DROSERA INTERMEDIA AS A PLANT OF BRAEMAR.

Will Mr. Barton have the kindness to re-examine the plant referred (Phyt. vol. ii. p. 309) to *D. intermedia?* I ask this because, first, *D. intermedia* is at present unknown on the east side of Britain, northward of Yorkshire; and secondly, because sometimes the mountain forms of *anglica* simulate the other species so closely as to deceive experienced observers. He can have specimens of *D. intermedia* for comparison, if he will forward his address. J. G. BAKER.

Is the fertile state of *Vitis riparia* of Michaux, Pursh, and others, (vol. i. p. 48,) at all known in England?

Is *Gagea lutea* associated with, or usually not far off from, *Lathræa squamaria?*

Communications have been received from

John Barton; Censor; T. B. Flower; F. C.; W. S.; C. Barter; R. K.; Professor Bentley, F.L.S.; William Sutherland; C. C. Babington, F.L.S.; Scraps; H. B.; G. E. S.

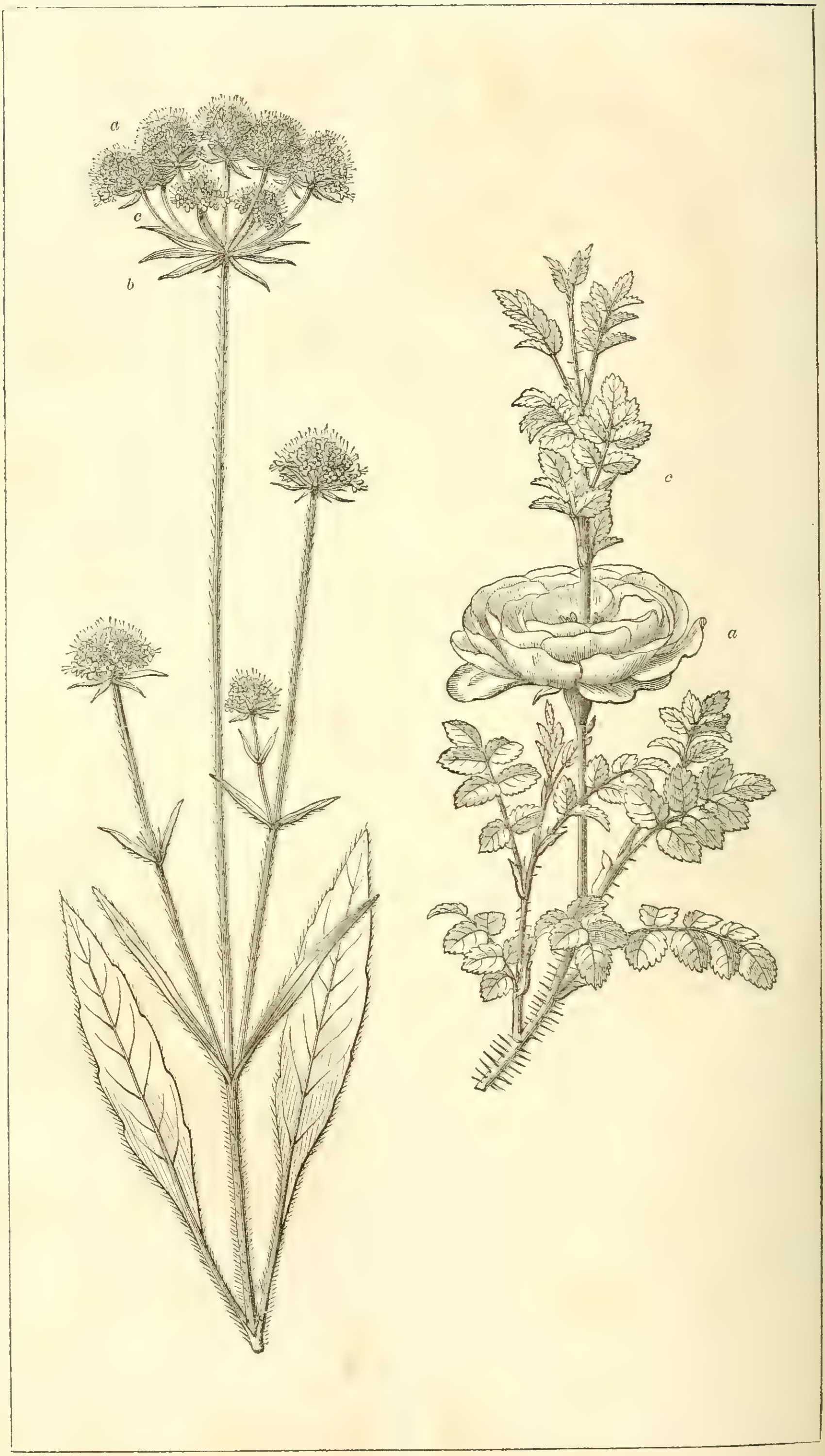
BOOKS RECEIVED FOR REVIEW.

Patison's Gleanings among the British Ferns.

ERRATA IN 'BRITISH BOTANY.'

Page 195, var. argenteus, L.C. *for* (17) *read* 13 b.
Page 196, R. pallidus, L.C. *for* (6) *read* (27).

To face Page 361. *Vol.* 2.



MONSTROSITIES.

By Robert Bentley, F.L.S., etc.

(*With a Plate.*)

On a Monstrosity of Scabiosa succisa.

The specimen which I now exhibit was gathered by me in the neighbourhood of Hitchin, Herts, on the 17th of last September. It is a monstrosity of the inflorescence of the Devil's-bit Scabious (*Scabiosa succisa*), in which most of the flowers, instead of maintaining their normal sessile position on the receptacle, have become elevated in small clusters upon stalks, arranged in an umbellate manner (fig. 1). Each division of the general umbel also exhibits a tendency to divide again in a similar umbellate manner (fig. 1, *a*), and thus to form a compound umbel. This tendency is not, however, by any means so strikingly exhibited in the present dried specimen, as in one which I unfortunately lost after gathering. What renders this specimen still more remarkable, is the fact, that the general involucre is not only well marked, but its component bracts are even larger than usual (fig. 1, *b*), and each stalked cluster of flowers has also its own involucel (fig. 1, *c*). The general characters of the flowers themselves presented no peculiarity worthy of notice.

The specimen must be regarded as one of some interest, for, as far as I can ascertain from inquiries amongst our leading British botanists, no similar one has been hitherto seen. It is very necessary, therefore, that the occurrence of such a monstrosity should be recorded; and in order to render it more evident, a woodcut has been appended to this notice.

The specimen must be also considered as interesting in another point of view, for the tendency thus exhibited by the flowers of a Dipsacaceous plant to develope in an umbellate manner, is an indication of an affinity between that order and the *Umbelliferæ*. It will be important to ascertain whether such a monstrosity will occur in future years, and thus become permanent, and I shall therefore look carefully for it next autumn.

I may here state that I have seen in former years somewhat similar monstrosities in *Knautia arvensis* and *Scabiosa Colum-*

baria, but this is the first time I have noticed any such monstrosity in *Scabiosa succisa*.

Monstrosity in the Flower of the Rose.

The specimen was given to me by Mr. Gill, one of my botanical pupils at the London Hospital Medical College during the last summer session. It presents the most remarkable illustration of *retrograde metamorphosis* which I have yet seen, for, although (as is well known) monstrous flowers of the rose may be seen yearly in almost any collection of that plant if proper search be made, yet such monstrosities are generally but exhibitions of tendencies in the parts of such flowers to revert to the typical leaf. In this specimen the calyx maintains its normal form and character (fig. 2); the corolla consists of several whorls of petals (fig. 2, *a*); within these are a number of stamens, in various stages of transformation into petals; and within these again are a few stamens in a perfect condition (fig. 2). So far, therefore, the flower presents nothing remarkable, but the peculiarity of it is in its central portion. Here, instead of finding perfect carpels, or carpels in a state of transformation into petals or leaves, we find the axis prolonged beyond the flower, and bearing on its surface a number of leaves, which exactly resemble in their form, condition of margins, and other peculiarities, those situated on the stem below the flower (fig. 2, *c*). The axis has developed as freely above the flower as below it, and does not exhibit the least tendency to form carpels or other flowers, etc., but in every respect resembles the ordinary leafy branch of the same rose. Such a monstrosity is a most interesting one, and is a striking example of the doctrine, that all the parts of the flower are formed upon the same plan as ordinary leaves, of which, indeed, they are to be regarded as modifications.—*From the 'Pharmaceutical Journal' for January*, 1858.

FIFESHIRE FERNS.

By C. Howie.

(Ferns, *continued from p.* 264.)

Athyrium Filix-fœmina, Roth. This variable species is abundantly distributed, illustrative of several varieties and intermediate forms.

Asplenium Ruta-muraria, L. Studded betwixt the stones on the east side of the tower of St. Regulus, St. Andrew's, occasionally found on walls over the county: a beautiful example of a covered wall stands by a plantation east of Colinsburgh. A plant with a more strong and lax habit grows in fissures of rocks in Kinaldy Den and west of Tayport.

Andreæa rupestris, L. On damp rocks and stones, north side of Drumcarro Crag, Lucklaw, and other hills, Lommonds, etc.

Andreæa Rothii, Web. and Mohr. On the Lommonds, sparingly on Lucklaw hill.

Sphagnum cymbifolium, Dill. Abundant in pools and marshes, common in fruit.

Sphagnum contortum, Schultz. In pools and marshes on the Lommonds, Tents Muirs, and Bank-head Moss, in fruit.

Var. *obesum.* Floating in pools; fruiting on Bank-head Moss, Tents Muirs, etc.

Sphagnum compactum, Brid. In fruit on the ascent from the north to the West Lommonds Prior, and Tents Muirs; on the latter station assuming a more erect and lax habit in fruit.

Sphagnum squarrosum, Pers. On the Lommonds and Bank-head Moss, associated with *Hypnum stramineum* in fruit in a marshy Fir-plantation on the estate of Gilmerton, near St. Andrew's.

Sphagnum rubellum, Wilson. On Bank-head Moss, etc., in fruit.

Sphagnum acutifolium, Ehrh. Variable in size and tint, of universal distribution.

Sphagnum fimbriatum, Wilson. In fruit, Bank-head Moss, Lommonds, etc., more sparingly distributed.

Sphagnum cuspidatum, Ehrh. Abundantly distributed over marshy ground; fruits in the greatest profusion in pools on Bank-head Moss.

Var. *plumosum.* Collected in fruit on Bank-head Moss, August 1853, by Mr. Jenner; distinguished by a more elongated form, having a lax or feathery appearance, with the capsule floating on a lateral pedicel.

Var. *recurvum.* Abundant on Bank-head Moss; readily distinguished from other species, with the exception of *Sph. squarrosum,* to which it bears a close resemblance when full-grown.

Sphagnum molluscum, Bruch. Sparingly in fruit on Bankhead Moss, in damp, shaded, moist situations. Bank-head Moss is five miles west of St. Andrew's, by Bank-head, the property of John Blair, Esq.

Hypnum, Dill., Hedw.

H. *albicans,* Dill. Common by the seacoast; found also, sparingly, on elevated crags and grass fields. Fruiting profusely on Tents Muirs, and by the margin of the sea, several miles east of St. Andrew's.

H. *glareosum,* Bruch. Common over the county: limestone quarries by Ceres; abundant, barren.

H. *salebrosum,* Hoffm. Occasionally found in a barren state on grass parks that are wet and elevated, fruiting freely on a barren-looking, wet grass field, at the top of Crag Hall Den, associated with *H. polymorphum;* we have had it named *H. campestre,* but we doubt this.

H. *lutescens,* Dill. By the seacoast, common fruiting on Elie and Largo Links, Tents Muirs, etc.

H. *plumosum,* Swartz. Principally found on the south and west part of the county.

H. *populeum,* Swartz? Common on rocks and walls.

H. *velutinum,* Dill. On the east seacoast, and frequently found on banks and walls over the county.

H. *rutabulum,* Dill. One of our common mosses, and most abundant fruiter. The var. *plumosum* by the seacoast; and var. *robustum* is found in a barren state by Ceres, with several other forms apparently deducible from local circumstances.

H. *rivulare,* Bruch. On the Lommonds; sparingly.

H. *piliferum,* Vaill., Schreb. Grass fields, top of Craghall Den; near St. Andrew's, etc., barren.

H. *prælongum,* Dill. The normal form is common on damp walls and banks. Var. *Stockesii,* abundant on the north-east coast, fruiting freely.

H. *Swartzii,* Turner. On the east seacoast in fruit, grass parks, Lings, etc.

H. *striatum,* Hedw. Fruiting abundant in shady dens.

H. *rucifolium,* Dill. Common in rivulets and on rocks over which water flows.

H. *confertum,* Dicks. On walls and dry shaded banks, common.

H. *megapolitanum,* Bland. By the margin of the sea, on the estate of Pitmilly, in fruit. Mr. Wilson appears to have considered it a doubtful variety, which appears to be more confirmed from specimens sent from this station as to its being specifically distinct.

H. *tenellum,* Dicks. Sparingly on walls and crags.

H. *fluviatile,* Swartz. On rocks in the watercourse of Kenly Den.

H. *irriguum,* H. and Wilson. In streams near Bankhead Moss, and on the western part of the county, sparingly.

H. *serpens,* Dill. On the seacoast, Fifeness, and trees, common.

H. *polygamum,* Bryol. Europ. On walls and Tents Muirs; barren.

H. *stellatum,* Dill. Common on the west of the county, as on the Lommonds.

H. *polymorphum,* Hedw. Common on wet grass parks, Tents Muirs, etc.

H. *palustre,* Dill. On rocks in rivulets; common.

H. *stramineum,* Dicks. Fruiting among Sphagnums, on the Lommonds, and Gilmerton.

H. *cordifolium,* Swartz. Kilconquhar Loch and Largo Links, in fruit.

H. *cuspidatum,* Dill. On marshy grounds; common.

H. *Schreberi,* Dill. In woods, common; fruiting abundant on Lucklaw Hill, and woods by the road to Tayport.

H. *porum,* Dill. Shaded woods and damp banks of Dens, fruiting abundant.

H. *abietinum,* Dill. In isolated patches, Largo Links and St. Andrew's Links sparingly; barren.

H. *delicatulum,* L. On grass fields, south of Crag Hall Den; barren.

H. *tamariscinum,* Hedw. Common; occasionally found in fruit, in damp shaded woods.

H. *splendens,* Dill. Fruiting freely on Lucklaw Hill, etc., with *H. Schreberi*; common.

H. *triquetrum,* Dill. Common in wooded dens, fruiting abundent in Claremont Den, west of St. Andrew's.

H. *loreum,* Dill. Drumcaro Crag in fruit, and in Claremont Den abundant. Common in a barren state over the county.

H. *squarrosum,* Dill. Common over the county, Cambo Den, St. Magus Muir, etc.; abundant in fruit.

H. *fluitans*, Dill. Fine specimens are found in the great bog of Bank Head in fruit. Tents Muirs, barren.

H. *revolvens*, Swartz. Tents Muirs, Lommonds, Largo Links, etc.

H. *aduncum*, Dill. In marshy pools, frequently met with.

H. *lycopodioides*, Neck. In marshy pools on Tents Muirs; abundant.

H. *filicinum*, Dill. Common in wet places; var. β is also met with.

H. *commutatum*, Dill. Large patches are found under wet banks crusted with carbonate of lime. The var. *condensatum* is commonly found; it fruits abundant by the east seacoast.

H. *uncinatum*, Hall. On walls and banks; common.

H. *Crista-castrensis*, L. On Mount Hill, Cupar. Woods at St. Fort, near Conacher; barren.

H. *molluscum*, Dill. East coast, on rocks and banks; common.

H. *cupressiforme*, L. Common; var. *compressum* on trees; var. *minus*, *lacunosum*, and *nigro-viride* frequently met with; *resupinatum* is abundant on the east seacoast and Crag Hall Den, retaining its distinct character. Mr. Wilson doubts its specific distinction in his 'Bryologia Britannica.'

H. *pratense*, Koch. Common on wet banks and grass fields; barren.

H. *scorpioides*, Dill. Lommonds, Tents Muirs, Largo Links, Normand Law, etc.

H. *pulchellum*, Dicks. On the Lommonds.

H. *undulatum*, Dill. In woods, common. In Ardrie Woods, fruiting in great profusion.

H. *denticulatum*. On crags and woods, common.

EPILOBIUM LIGULATUM.

On the Epilobium ligulatum *of Baker*.

By Charles C. Babington, F.R.S., etc.

It is about a year since Mr. Baker directed attention to an *Epilobium* found at Gormire, near Thirsk in Yorkshire, which he considered to be a species distinct from any which had been described, and to which he gave the name of *E. ligulatum* (Phytol., ser. 2, ii. 18). In the first place, I have to remark that the proposed name is unfortunate; for the leaves, from whose shape the name is derived, are certainly not *ligulate*: those of *E. tetragonum* are ligulate; and therefore, in addition to being unfortunate, it is also inconvenient.

The history of the plant seems to be correctly given by Mr. Baker, with the exception that he has not noticed (and probably had not seen) my observations concerning it, which will be found in the 'Annals of Natural History' (ser. 2, xvii. 245); nor has any acquaintance with the remarks upon the same or similar plants contained in the writings of foreign botanists.

I am inclined to think that there is more than one plant included under the name of *E. ligulatum* by Mr. Baker; for those individuals cultivated at Cambridge, from roots sent to me by Mr. Borrer (and which he received originally from Mr. Baker), differ from the description given in the 'Phytologist' in the following manner. The lower part of the stem is terete, with very faint traces of two decurrent lines: the base of the stem-leaves is much like the same part in *E. obscurum*: the flower-buds are erect; except that the whole top of the plant inclines when of advanced growth, presenting nothing of the peculiar nodding state seen in the top-with-unopened-buds of *E. palustre*: the seeds are not oblong-fusiform; for, although twice as large as those of *E. obscurum*, they widen gradually from their base to their top, which is abruptly rounded and shows (in perfect seeds) no trace of the prolongation of the testa which is seen in *E. palustre*; it is only when the seeds are abortive that the testa is slightly prolonged. This plant has a very curious hybernaculum, consisting of a number of small shining, oblong, and nearly sessile leaves closely packed together and imbricate. It retains this form even when vegetation is commencing, in the month of April. At that season the little oblong bulb-like hybernaculum of *E. palustre* has lengthened into a compact mass of fleshy scales, from the end of which the new stem springs; and *E. obscurum* has a rather loose rosette of large oblong stalked leaves. As remarked in the 'Annals' (l. c.), I think that this form of "*E. ligulatum*" is the *E. obscuro-palustre* of F. Schultz ('Archives de Flore,' 46) and the *E. Schmidtianum* (Rostkov) which is considered as a variety of *E. palustre* by Koch. It is very like the *E. parvifloro-palustre* (Hampe) of Reichenbach (Fl. Exsic. no. 2254), but has not

(correct)

the quadrifid stigma and the flowers resembling those of *E. parviflorum,* which are said to be possessed by that plant. To *E. obscuro-palustre* I refer specimens sent to me by Mr. Baker as having been gathered at Gormire in September, 1853.

The other plant, which I have not seen alive, is represented by specimens from Mr. Baker, which are stated to have been also gathered at Gormire, but in August, 1853. It is probably the *E. palustri-obscurum* of F. Schultz ('Archives,' 46) and the *E. chordorhizum* of Grisebach. The specimens agree very well with the description given in the 'Phytologist' (l. c.), except that I should call the leaves *lanceolate-ligulate,* for they are lanceolate and attenuate at both ends, or, to use the nomenclature of Mr. Woods, they are *lanceolate-attenuate-acuminate.* I have not seen the seeds of this plant nor the hybernacula, but presume that the former have a slight prolongation of the testa, from Mr. Baker calling them "oblong-fusiform."

Should *E. obscurum* and *E. palustre* grow together at Gormire and the other places where these puzzling plants are found, I should be driven to the conclusion (somewhat against my will) that they are hybrids. And of this the probability is increased by observing that they do not seem to be very constant in form.

It may be well to add a few words descriptive of the supposed *E. obscuro-palustre* as cultivated in pots by myself and the Curator of the Cambridge Botanical Garden, and afterwards in the open ground of the latter place, where the hybernacula may now (February, 1858) be seen.

Stem erect from the end of the hybernaculum, rather more than two feet high, branched from every axil and forming a rather broad-based pyramid. All the branches produced flowers, and many of them had secondary branches. From the very base of the stem the stoles were starting in the month of August; they were of a reddish-yellow colour, had very small leaves, and applied themselves closely to the ground throughout their whole length: the lowest branches, which were prostrate for some little distance from their origin, became ascending to flower. Leaves narrowing gradually from a rounded base, with a short haft ending in two slightly raised decurrent lines, which gave a rather angular form to the young stem: that angularity becomes less and less apparent as the stem thickens through age. The lowest stem-leaves were rather wedge-shaped at their base; so also were the floral leaves. The leaves were remotely and irregularly denticulate; the sepals linear-lanceolate; the styles formed an entire club. The floral buds were erect; although the top of the plant was inclined, through a want of sufficient strength to support its own weight.

It will be seen from these remarks that there remains much for Mr. Baker to do before he has quite cleared away the difficulties attending these closely allied plants, which, if hybrids, probably differ solely on account of one being produced by the action of the pollen of *E. palustre,* and the other of that of *E. obscurum.* Let me recommend them earnestly to Mr. Baker's study, bearing this point in view.

If it should be shown that there is indeed a new species, then probably the orthography of the name might well be slightly altered so as to render it more correct. I would call it *E. lingulatum,* from the outline of the leaves being rather that of a *tongue* than of a *strap.* But even then it would not be altogether correct, for the term *lingulate* is always applied to a thick or fleshy body, such as the leaf of a *Mesembryanthemum,* and cannot rightly be used for the thin leaf of an *Epilobium.*

FOSSIL BOTANY.

The following is an extract from Hugh Miller's 'Testimony of the Rocks,' Lecture First:—

"Ere passing to the luxuriant Carboniferous Flora, I shall make but one other remark. The existing plants whence we derive our analogies in dealing with the vegetation of this early period, contribute but little, if at all, to the support of animal life. The Ferns and their allies remain untouched by the grazing animals. Our native Club Mosses, though once used in medicine, are positively deleterious; the Horsetails, though harmless, so abound in silex, which wraps them round with a cuticle of stone, that they are rarely cropped by cattle; whilst the thickets of Fern which cover our hillsides, and seem so temptingly rich and green in their season, scarce support *the existence of a single creature,* and remain untouched in stem and leaf from their first appearance in spring until they droop and wither under the frosts of early winter. Even the insects that infest the herbaria of the botanist almost never injure his Ferns. Judging from all we know, the earliest terrestrial Flora may have covered the dry land with its mantle of cheerful green, and served its general purposes, chemical and others, in the well-balanced economy of Nature; but the herb-eating animals would have fared but ill, even where it throve most luxuriantly; and it seems to harmonize with the fact of its non-edible character, that up to the present time we know not that a single herbivorous animal lived among its shades."

Would some of the readers of the 'Phytologist' inquire into the facts respecting the Fern tribe being free from attack by insects? As far as I have observed, I find Miller's statement correct; and I should like to know what particular *property* the Fern has to repel the attacks of insects, and why animals do not eat it. S. B.

EXCURSION IN KENT.

Details of a Six Days' Excursion through a part of Kent, in the month of August, 1835, *by* Daniel Cooper *in company with* James Carter.

[A correspondent suggests that the following notes may have some interest for the readers of the 'Phytologist,' and especially for those who had the pleasure of knowing their amiable author.—Ed.]

Friday, Aug. 7, 1835.—Left town at half-past ten A.M. Rained a little all the way to New Cross. Turned off the road to Lewisham. Went into the chalk-pit; found an uncommon shell. Bought some fossils: nothing particular. Got out of the pit into the road. Went through Lewisham. Marked the plants that grew on the borders of the river: did not find any shells there. Walked on through Lee. Noticed and wrote down the plants growing by the roadside between Lee and Eltham. Caught in a heavy shower of rain: no house that we could find shelter within a mile: obliged to stand up under a hedge, rain dropping from the leaves, very disagreeable. Left off raining and turned fine. Took the signpost road to Mottingham. Found some shells in a place where water had been, but which was now dry. Arrived at the Porcupine Inn. Found a *Mentha* on the common opposite. Tramped through Chiselhurst on to the Common: found nothing particular. Inquired for the bogs: rather difficult to find: at last found them, enclosed in Squire Baring's grounds. Found the *Scutellaria minor, Achillea Ptarmica,* etc. After leaving the Bogs, made the best of our way to Mary Cray, Paul's Cray, and Foot's Cray, where we slept after a good twenty-five miles' walk.

Saturday, Aug. 8.—Left Foot's Cray at half-past six A.M. Went through North Cray. Had a good draught of milk. Passed through Bexley, and inquired the short cut through the fields to Dartford. Went a good three miles out of the road; arrived in Dartford about nine. Breakfasted. Put some plants out to dry. Capital fun to hear the by-standers' remarks, on the uses to which the shells were applied: no idea of a collection: they understood a little more about the insects (bugs, as they called them). Left Dartford at half-past eleven for the Heath. Carter found some good insects there. Walked on towards Green St. Green. Found *Saponaria officinalis* and other uncommon plants. Stopped in Darne Wood until four o'clock. From thence to the chalk-pit out of the wood. Found a number of rather uncommon plants. Crossed the fields to Stone and Greenhithe Pits. Stopped there an hour. Dined. Rambled about. Could not find any fossils: the men had left off work. Went through Northfleet. Began to think of getting housed for the night. Trudged on from thence to Chalk, a mile from Gravesend, a long dreary road. Did not admire the exterior or interior of the inn: walked on to the next: all full. The next, ditto. Very much annoyed. At last brought up at the Family Hotel at Shorne, on the Rochester road, at ten o'clock P.M. Very tired, having walked six miles before we could find a bed, and twenty-nine miles in all.

Monday, Aug. 10.—From Shorne, through Rochester, Chatham, and Rainham Creek, to King's Ferry. Had an excellent breakfast. Found an uncommon shell in the ditch by the house. Crossed the ferry at ten. Walked across the marshes to Queenborough; from thence along the wall to Sheerness. Found several fossils and plants. Got to Clarkson's about one. Sat in the coffee-room a good hour before we saw him. Had an excellent dinner with him. Went after Mr. Keddle. Took us round the coast. Found several fossils, plants, and a large species of *Helix*. Came home through Minster.

Tuesday, Aug. 11.—Was called at seven: had breakfast at half-past eight. Carter made himself very agreeable. After bathing, went on the coast to collect some more of that large species of *Helix*. The tide was running out. Came back to the Fountain. Spent a good hour collecting fossils from the ragstone. Arrived at East Church at five o'clock. Got down a stupendous cliff on to the beach. Collected fossils for about three miles. Fell in with an old seaman, who told us if we had far to go to look sharp about it, as it looked likely for wind and water. Night drew on. Carter wanted to look for more. I ascended the cliff, and thought several times I should have fallen, the ground kept giving way under me, all crumbly. I looked to vegetation for protection; it was there in abundance. Walked home, across country, seven miles. Was very dark. Got to the Fountain after ten o'clock. Picked Canary-grass on our road home. Retired to bed at twelve o'clock. Made up our minds to sail home by the smacks.

Wednesday, Aug. 12th.—Got up early, and breakfasted between eight and nine o'clock. Told a man to call us when any smacks, bound for London, came down the river. Was called at half-past ten o'clock. Wished all good-bye, got into the boat, and rowed off to the smack. Would not take us on board; were not allowed. Agreed with the men to sail about till the steam-boat came in from town, which was nearly three hours. Had a pleasant sail; water very rough; slightly sick; Carter was not, although he wished to be, never having experienced sea-sickness. Went on board the steamer at two o'clock. Was not quite the thing all the way to Southend. Saw some nice yachts sailing about: a sailing match was to take place in an hour's time. Boat stopped to take in passengers from Gravesend at five o'clock. Nothing particular happened all the way home. Arrived at Fresh Wharf at half-past eight. Parted with Carter; made the best of my way home.

"'Mid pleasures and palaces e'er we may roam,
Be it ever so humble, there is no place like home,
Home, sweet Home."

TRANSMUTATION OF SPECIES.

To the Editor of the 'Phytologist.'

Sir,—I am the correspondent who made the inquiry published in the 'Phytologist' for September, 1857, and my object was simply to learn if there be any evidence that the cultivated varieties of the garden cabbage, savoys, curled greens (Scotch kail), to say nothing of brocoli, cauliflower, etc., were originally derived from *Brassica oleracea* or sea-cabbage. Mr. Cheshire very politely refers me to Balfour's 'Class-book' as evidence, and quotes what may be admitted as the Doctor's opinion. Thus far Mr. Cheshire has a voucher. I knew before I sent the query that he might have a *score*. But who will be the Doctor's voucher? Mr. Cheshire will probably reply: "The general consent of all botanical authors, from the revival of letters, and before, to the present time." And he may then sum up by the very pertinent counter-query: "What more does the querist want? What has been believed at all times, in every place, and by all men is true,—*veritas catholica*." I want facts, not assumptions; and the only fact Mr. Cheshire appears to be able to supply is, that he has cultivated a wild cabbage originally from Orme's Head for three generations, and the leaves have become in that time much larger and broader than in the wild state, the tendency to form a heart also being much greater than in its native habitat. Let Mr. Cheshire go on cultivating and improving his wild Cabbage till it is equal to a Battersea or Early York Cabbage—till he transforms it by cultivation into Brussels sprouts, curly kail, small kail, cauliflower, and every other variety and sort of the culinary plant. Were all this effected, it would at the best be only presumptive, but not satisfactory evidence, that our vegetables and cereals are or were originally derived from wild examples or wild individuals. The prevalent opinion certainly is, that all domesticated plants have been at some time or other reclaimed from a state of nature; it is, however, only an assumption or an opinion. And science is not a systematic arrangement of assumptions and opinions, but of facts. It is, it may be observed, utterly impossible to prove any one of these assertions about the conversion of wild into domestic or cultivated or culinary plants. Those who believe in this theory of the mutability of *Ægilops ovata* into *Triticum* *sativum* may say, Whence or how came they? It may be replied, *modo Scotico*—Scotchman-like: Whence or how came we and other animals? Were we and other living sentient beings created in a wild state, or were we not formed originally quite as good if not better than we are now? Again, is it not rather unphilosophical as well as *un*-theological, to maintain that the Creator formed creatures and did not at the same period create food for them? We know He created food both for man and for beast before He created the creatures destined to subsist on the products of an earlier creation. How was man to live, if it took three generations to render a cabbage eatable, or twelve years to convert *Ægilops*, a worthless grass, into the staff of life? But the wisdom of God provided for all this in creating cabbages and bread-corn before He created men to eat them. That all these good things degenerate if not carefully kept up to the mark by the untiring industry and perseverance of man, I admit. Man himself degenerates both physically and intellectually under adverse circumstances. My object in thus filling up so much of the pages of the 'Phytologist' is not to maintain paradoxes, much less to gainsay what is received as truth by the major part of mankind, both learned and ignorant, while there is not a particle of truth in it. Truth is not what *may* be true, but what *is* true; and which is not said because some one has said it before, but because he who says it knows that it is true, either from his own experience or the recorded and authenticated experience of others. Even should the experimenter succeed in converting oats into rye, and *Ægilops* into wheat, he would be nearly as far from offering sufficient evidence as ever, viz. that oats and rye and wheat and *Ægilops* are mutable, and that it is pure accident, when oats are sown, whether rye or oats will be produced. Will anybody in his senses believe that, granting the possibility of converting *Ægilops ovata* into *Ægilops triticoides,* still there is nothing but an accidental difference between wheat and this wretched substitute for it? How the human race was to be supported during the many years admitted to be necessary for this conversion may be left to the ingenuity of the believers in these wild theories to explain.

VERAX.

OAK-LEAF FUNGUS.

The small brown spots, observed by your correspondent "S.B." on the under side of oak-leaves, are, in all probability, the productions known by the name of "Oak Spangles," which are a a kind of gall, produced by an insect (" *Diplolepis lenticularis*"). See Lindley's 'Vegetable Kingdom,' page 31.

The minute Fungi he observed on the under side of one of these spangles may have been minute species of *Peziza*. Should he discover any other specimens with these Fungi, I shall feel greatly obliged by his sending me a leaf or two.

Let me recommend to " S. B." and to " all others concerned" (as the lawyers phrase it), the study of the Fungi. The multitude and variety of forms assumed by these lower plants is almost beyond belief, and their study, as it were, opens a new world to the Phænogamic botanist. I have only lately begun to study the Fungi, but find it a most interesting occupation.

A. JERDON.

Mossburnford, Jedburgh, N. B.

THIRSK NATURAL HISTORY SOCIETY.

Botanical Exchange Club.

The monthly meeting of the Thirsk Natural History Society was held on the evening of Monday, the 1st of February. The following botanists were duly enrolled as members of the Exchange Club,—

Carrington, B. M.D., Yeadon, West Yorkshire.
Gissing, T. W., Wakefield.
Lindsay, W. L., M.D., Perth.

Mr. J. G. Baker read the following notices:—

Delphinium.—Amongst the plants that have effected a migration in the train of the Cereal Grasses, are a couple of species of Larkspur, *D. Consolida* and *D. Ajacis,* which both seem to have had their original home in the East, but which have both become more or less definitively established in the cultivated fields of several of the countries of the western portion of Europe. According to the Floras, *Consolida* extends from Lapland southward throughout Scandinavia, and is generally diffused in Belgium and France. *Ajacis* is frequently subspontaneous in Belgium, and occurs in France in sandy tracts in many of the departments. *Consolida* has for some time been permitted to take a place in our British catalogues; but my own impression is, that the plant of 'English Botany' is in reality the other species; and indeed I cannot call to mind having had the opportunity of gathering or seeing in a dried state any wild British examples of the same *Consolida* of which I shall have the honour, before the close of the evening, of submitting specimens to your inspection, from stations in France, Switzerland, and Italy. The two species may be easily known from one another by various characters, amongst others by those of their capsules: *Ajacis* has a pubescent, *Consolida* a glabrous follicle. And I observe that, though still calling it *Consolida*, Mr. Babington assigns a pubescent capsule to the plant which he describes in the 'Manual.' This circumstance may be regarded as furnishing some degree of confirmation of the idea which I have suggested, but it is still quite possible, not to say probable, that both species occur. I am not however in a position to state confidently that such is the case, and should feel indebted to any of our members for fuller information relative to the question. Whilst treating upon the matter, it may perhaps also be worth while to remark that a third species, well known to horticulturists, may sometimes be noticed as a casual straggler. The following diagnostic notes will amply serve to distinguish the three.

D. Consolida, L. Panicle short, loose, few-flowered. Flowers blue or white. Capsules glabrous, acuminate, with lateral styles equalling half their lengths. Lower bracts simple, much shorter than the peduncles. Stem slender, downy, with several divaricated branches.

D. Ajacis, L. Panicle elongated, close. Flowers blue, rose, or white, never violet. Capsules pubescent, attenuated gradually upwards, with short sublateral styles. Lower bracts foliaceous, equalling or surpassing the peduncles. Stem strong, pubescent, with several open branches.

D. orientale, Gay. Panicle elongated, close. Flowers violet, rose, or white. Capsules pubescent, narrowed suddenly with short lateral styles. Lower bracts foliaceous, equalling or surpassing the peduncles. Stem strong, glabrous, frequently simple.

Dryas octopetala, L. This plant has been found amongst the Caernarvonshire hills, by one of the Snowdon guides, Williams by name. Details relative to the station are given in the January number of the 'Phytologist.' For the specimen on the table we are indebted to the courtesy of Mr. Irvine. The species is diffused throughout the Scotch Highlands, but southward has previously been noticed only in the two Yorkshire stations of Cronkley Fell and Arncliffe Clouder.

He exhibited specimens of *Delphinium Consolida* from various Continental localities; of *D. Ajacis*, collected by Mr. Hort in Cambridgeshire, and by Mr. Mudd and himself in Yorkshire; of *D. orientale* from a potato-field at Carlson Moor, near Thirsk; and of the Caernarvonshire *Dryas*.

Mr. J. H. Davies read a notice from Dr. Carrington of the occurrence of the following Mosses in the Isle of Man, which were noticed in his list in the 'Phytologist:'—*Orthotrichum stramineum, O. tenellum, Bryum pallescens, Grimmia patens* (Glen Laxey), *Hypnum ochraceum* (with fruit, near the water-wheel in the Glen Laxey stream); and mentioned a new station for *Schistidium maritimum,* observed by Dr. J. B. Wood, viz. rocks at the Calf of Man. He also exhibited specimens of the following Mosses:—

Bryum cochlearifolium, Wils. MSS. This Moss was found by Mr. J. P. Marrat, in 1855, in a quarry at Wavertree, near Liverpool. Mr. Wilson furnishes the following provisional diagnosis: "Bryum atro-purpureo proximum, foliis patulis valde concavis obtusis, apice incurvis, areolis laxioribus;" and writes: "The fruit has not yet been found, and it still waits for establishment as a genuine species. I have seen very little of it, but its very concave leaves seem to separate it from any allied species."

Leptodon Smithii, Westmoreland. Found by Mr. Nowell, in 1857, on trees in Borrowdale. This discovery extends considerably the northern limit of the species in this country.

Andreæa Grimsulana, Bryol. Eur., Aberdeenshire. Discovered by Mr. Croall on Ben-na-muic-dhui. Distinguished from *A. rupestris* by its larger size, branched habit, and broader leaves, Near to Britain; but perhaps not a distinct species.

RETROSPECTIVE CRITICISM.

In the December number of the 'Phytologist,' p. 288, there is a communication from your correspondent, the Rev. Hugh Macmillan, on the botany of Cleish Castle, etc., in which he remarks on the supposed similarity of *Habenaria albida* and *H. chlorantha,* and gives various diagnostics by which they may be respectively recognized. May I be allowed to ask if this is a slip of the pen, or an error arising from momentary forgetfulness? Surely he cannot mean that such very *dissimilar* plants as the two above mentioned can ever be mistaken for each other! Has he not mistaken *H. albida* for *H. bifolia,* which does very much resemble *H. chlorantha,* and from which it can indeed be only distinguished by the very diagnostics he gives. I was rather hoping and expecting to have seen an explanatory note of his own in this month's 'Phytologist,' but as none such has appeared, I trust he will excuse my calling his attention to what I cannot construe into anything else than a strange error.

May I also be allowed to express my conviction that the good cause which we have both at heart, viz. that of rendering botanical science interesting to those who cannot penetrate into all the mysteries of scientific nomenclature, cannot be advanced by the employment of such strange compounds as "*autochthonous,*" on page 291. Of course when we really want a word to express in a few *letters* what now requires three or four *words,* as in the case of the recent invention of the word "telegram," it is then fair enough to construct on classic principles such a word as we require; but it is impossible to prove the necessity that exists for the introduction of a word like *autochthonous,* when our vocabulary already contains "native" and "indigenous," either of which would suit equally well for the purpose. J. B.

In the 'Phytologist' for January of the present year, at page 312, I read: "Do you know if *Dryas octopetala* is in print as a North Wales (Caernarvonshire) plant before?" The following has just met my eye; and as the writer of the communication in which the above inquiry is raised, will no doubt be glad to be rightly informed upon the subject, I hasten to acquaint him and your readers generally, that the plant in question had been observed and recorded in the co. Caernarvon more than sixty years ago. I have now before me 'Letters written during a Tour through North Wales in the year 1798, etc., by the Rev. J. Evans, B.A., Oxon.' (mine is the third edition, 1804), and at page 193 we find that the author, after quoting the remarks of a friend of his, describing some parts of the Snowdon district, adds:—

"This gentleman also favoured us with a list of rare plants growing about the different parts of the mountain: *Anthericum serotinum, Serratula alpina, Cerastium alpinum, C. latifolium, Saxifraga stellaris, S. nivalis, Lychnis alpina, Polypodium ilvense, P. alpinum, Acrostichum septentrionale, Viola alpina* (whatever that may be ! !), *Geum rivale,* and DRYAS OCTOPETALA," etc.

This of Evans* led me to look a little further, and in Nicholson's 'Cambrian Traveller's Guide,' a very useful though rather confused, and in places most perplexingly erroneous, compilation, there occurs, under the description of Llanberis, the following passage, but the compiler does not inform us from whom he borrowed it, probably from Evans, however, as above quoted:—

"On Clogwyn y Garnedd are the following plants:—*Anthericum serotinum, Serratula alpina, Cerastium alpinum, Viola alpina, Dryas octopetala,*" etc.

It certainly does not occur in Bingley, nor, so far as I can find, in any other of the North Wales Tours, and it is quite evident that our highest authority, Mr. Hewit Cotterell Watson, ignores it as a Welsh plant altogether: neither do we find it as such, in the several editions of Babington or Hooker and Arnott; but it is still kept as an open question, before botanical observers and readers, many of whom may have far better opportunities of ascertaining whether it be elsewhere recorded, than your humble servant, Z.

[Perhaps it was as safe to omit *it* (*D. octopetala*) in the 'Cybele' till better authority than the Letters from Wales, and Nicholson's 'Cambrian Tourist's Guide,' could be quoted. The occurrence of

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* In other matters—therefore why not in this about *Dryas octopetala*?—we find that the assertions of Mr. Evans have need to be received with some degree of caution; for instance, he enumerates among the plants to be found in the vicinity of the Great Glyder, *Swertia perennis*, page 194, and *Bulbocodium vernum*, at page 197. Let us hope W. P. and others will not fail to keep a sharp outlook for these.

Swertia perennis, Viola alpina, etc., indorsed by Evans (see Note), would have justly impaired the value of his testimony in behalf of *Dryas*. The matter is now set at rest, except as to the question, did a notice of this plant, as a native of Wales, appear in print before last January? Such a notice did appear, but ? on reliable authority.]

BOTANICAL NOTES, NOTICES, AND QUERIES.

Early Spring Flowers.

This afternoon, when taking a walk in the country, I, to my great surprise, found in beautiful flower *Chrysosplenium oppositifolium* and *Ranunculus aquatilis*. I find, on referring to your work, that the former is to be looked for on the 9th of March, and the latter on the 8th of April. It was not merely a single flower, but several; in fact, myself and two friends were amply supplied with specimens. I also gathered rather small specimens of *Mercurialis perennis* with several of the flowers expanded.

Huddersfield. S.

Agrimonia agrimonoides, *Linn.* (*Aremonia*, DC.)

It might be inferred from Mr. Babington's note in 'Phytologist,' vol. ii. p. 272, that the plant so called had not been known by the former name for generations. Yet it is described under the name *Agrimonia* by Loudon, in his 'Encyclopædia of Plants,' a work published within the last thirty years. In the 'Flora Græca' it is described as an Agrimony (Fl. Gr. 458). Also in Sturm's 'Deutschlands Flora' and Rœmer's 'European Flora.' It might be hazardous to say anything about *nativity*, this term being so variously understood by various naturalists. Mr. Sim has already given all the information necessary about the fact of the plant's growing in the Scottish woods and hedges. He has only to convince Mr. Babington and the Yorkshire naturalists that he has not mistaken the plant for something else.

Orchis mascula.

For the information of such readers of the 'Phytologist' as take an interest in the provincial names of plants (see 'Phytol.' for July, 1857, p. 167), I may mention that *Orchis mascula* (the "Long Purples" of Shakespeare, Hamlet, Act V.) is known among the country people in some parts of Northamptonshire by the name of "Bloody Butchers." The colour of the flower, and still more the dark blood-like spots upon the leaves, have no doubt suggested the appellation.

I do not find the name of "Long Purples" in either Parkinson or Gerard. Turner says that one kind of *Orchis* (probably *O. mascula* or *maculata*) "hath many spottes in the leafe, and is called Adder Grasse in Northumberland." W. T. Bree.

Long Purples of Shakespeare.

One would think *Orchis mascula* more likely to represent the plant in question than *O. Morio;* the former is frequently met with having spikes of flowers from nine to fifteen inches long: the latter might very well be called Short Purples. W. P.

Notulæ on Botanical Notes, etc.

1. *Flora of the Pyrenees* (from Dub. Nat. Hist. Rev. 'Phytologist,' vol. ii. p. 351).—It might be inferred from the writer's remarks, that it is very doubtful if *Asplenium fontanum*, Bernh., has ever been seen really wild in England. He lays some stress on its omission by Mr. Newman in his last edition of the British Ferns, but does not deny its admission without hesitation by other authors. I would respectfully ask what ordinary British *Asplenia* in their young state bear a close resemblance to this plant. Surely not *A. Ad.-nigrum* nor *A. Trichomanes!* He further states that immature fronds of larger species, collected near Cork, have been referred to *A. fontanum.* This might be said of England also: but it should not discredit the positive testimony of departed and living botanists who have collected the rare plant in England. I received and am in possession of specimens collected by the Rev. W. H. Hawker (see 'Phytologist,' N. S., vol. i. p. 221), and to the Rev. collector of these I would refer those who have any doubt on this point. My testimony is only second-hand.—A. I.

2. *Wahlenbergia hederacea* is stated as occurring abundantly, with the remark, "Not uncommon in Irish bogs, but here growing on *dry* clayey soil." In the uppermost and *driest* part of St. Leonard's forest, about the rabbit-holes, this elegant plant grew in profusion, and probably still grows. It abounds in many parts of St. Leonard's and Tilgate forests, both on moist and dry places.—A. I.

3. *Orchis* (Phyt. p. 352).—I also beg to inform W. S. that *Orchis* is not a solitary anomalous case of a suppression of the English name and the substitution of a Latin or even Greek name. The compilers of Floras have not room for all the names by which a plant or a series of plants may be known, and they select, on principle, the name or names under which the plant is most familiarly known. The following examples are offered:—The Greek *Anemone* is a more familiar name than Wind-flower, its exact translation, or even than Pasque- or Paschal- or Pasch-flower. Colts-foot, Foal-foot, and Horse-foot are not so common, even in Scotland, as the Latin name, *Tussilago. Columbine* is well known; Cock's-foot, its English counterpart, not at all. Fritillary is not uncommon, but Guinea-hen, its English representative, is. Dandelion is well understood; *Pisse-en-lit,* the French as well as the English equivalent, is to be found only in books to which both lettered and unlettered Britons are strangers. *Veronica* is more popular than Speedwell. The flower to which "our liberal shepherds give a grosser name" than the cold maids, if all its appellations, from the Channel to Buchanness, were collected, might rejoice in twice as many names as a Spanish grandee, or as many quarterings as adorn the shield of a German baron.—A. I.

HYPERICUM CALYCINUM

Is, as you probably know, spread out on a bank by the side of a lane, the plant having been sown or planted inside the hedge near Dorking. But the escape, if it may be so termed, has to my knowledge remained unaltered for more than thirty-five years. H.

[I am acquainted with a less exceptional locality than the above, but I have not known it so long as thirty-five years. *H. calycinum* grew in the Dorking chalk quarries, not far from Denbies, in 1838: how it got there I know not. The place is far from a hedge, garden, or plantation. —A. I.]

MUSTARD.

In the November number of the 'Phytologist' you have an answer to the Mustard query. When it first appeared the weather was so hot that one did not feel inclined to touch the subject; but if you will allow me now to do so, I would call your correspondent's attention to page 164 of 'Dodonæus,' published at Antwerp, 1553, where he will find the *Sinapis* or Mustard, given in Greek, Latin, German, Brabant, and French. In Brabant it is *Mostaert*, French *Moutarde*. It appears from this that our word *Mustard* is derived from the Brabant or the French.

It is stated in Miller, that the seeds when first bruised have *little* pungency and much bitterness, but moistened with *vinegar*, and kept for a day or two, the essential oil is evolved, and it becomes more acrid.

The word *must*, derived from *mustum*, signifies (according to Webster) *new wine; wine pressed from the grape, but not fermented.* I cannot find any custom of mixing Mustard with Must. It appears from one of Shakespeare's plays that mustard was formerly made at Tewkesbury, and called *Tewkesbury Mustard.*

Your correspondent might refer to the History of Gloucestershire for an account of the manufacture of mustard. S. B.

FROM THE 'REGENSBURG FLORA.'

"Nur verlange ich, dass, wer eine Pflanze als eigene Art aufstellt, nun auch ein beständiges Kennzeichen, woran man sie in allen ihren Formen erkennt, angibt."

"I only wish that every botanist who proposes a plant as a *distinct* species, would at the same time draw up and publish a constant character, whereby the new species might be recognized under all its forms."—*Koch, in Fl. Reg.*

"Nature formed real species."—*Koch.*

What is the meaning of species here? What is a species? All the individual plants that agree better with each other than they do with anything else, and which have existed from the beginning, do now exist, and are to be produced in the ages yet to come. Nature created some of these, but some have been, if not created, at least greatly multiplied by human agency. Nature, it may be granted, created some individuals which may be held as representatives of all their descendants.

The view, that Nature created only forms, and that the selection of these consists merely in subjective conviction and arrangement, is as inconsistent with my views, as that Nature created only individual species, from which all the others have gradually sprung. A. N.

NASTURTIUM OFFICINALE

Fails in a large circle round Clent, in Worcestershire. Except where planted, it appears nowhere for miles, although there is plenty of water in this tract. Professor Koch states that it is not found in *Silesia*, and that *Teucrium Scorodonia* is not found in Upper Bavaria, nor in Bohemia, nor in Silesia. The Professor says, "At least it does not appear in the Floras of these countries." A. N.

From the 'Times.'

Sir,—As a subscriber of many years' standing to your invaluable paper, I claim the privilege of an old acquaintance to request your insertion of the following, should you consider it worthy of a corner in the 'Times.' On New Year's morning I cut from a Magnolia-tree in my garden a splendid flower, the last of many on the same tree during the past season. I have also gathered within the past fortnight upwards of a dozen Roses from one *Devoniensis* Rose-tree; both trees growing in the open air perfectly unsheltered. WILLIAM FORD.

Yealmpton, Devon, Jan. 4, 1858.

IMPORTANCE OF BOTANY.

The following is an extract from an Address by Dr. Cleghorn to the native graduates in medicine educated in the Medical College of Madras.

"I would urge you not to neglect the daily study of diseases themselves, as the foundation of all practical medical science. I find a prevailing evil everywhere is to give undue attention to *reading*, and not enough to observation, dissecting, and analysis.

"I may give by way of illustration the questions frequently put to me in my own department, which run thus:—1. Which are the best text-books on Botany? and then, 2. How am I to become a Botanist? The first question is easily answered; to the second I reply in this manner. I would urge upon you the daily devoting of a *few minutes*, when you cannot spare more, to the task of describing, curtly but logically, one or more specimens of wild plants. This is admirable mental discipline, and is one of the greatest uses of Botany as a branch of Education. Botany is essentially a science of observation, in which practice alone ensures success. It is exactly the same in medical practice.

"A man who would improve himself, must daily watch and carefully record his cases; he must go to the root of the matter, and consider the exciting cause of the mischief and the vital forces whose results he witnesses, and then, taking into one view all his observations and all his inferences, he seeks to form a connected picture of the whole, and to apply such remedies as will meet the various exigencies of the case, subduing excessive action, stimulating that which is weak, and correcting that which is peculiar or perverted."

THE POISONOUS PROPERTY OF YEW.

Two fine steers, the property of Mr. J. Taylor, Summer-hill, Gainsborough, were seen unwell on Saturday week, and one of them immediately fell, and died before any remedy could be obtained. To the second, which also fell, a bottle of gin was given instanter by the owner. The animal rallied, and with other remedies applied by Mr. Chapman, veterinary surgeon, is now fast recovering. The steers had been in the garden cropping a yew fence, which was the cause of the illness, as in the *post mortem* examination was clearly defined.—'*Times*,' *January* 2, 1858.

Herbaceous plants common to India and Europe, Dr. J. Hooker informs us in his 'Himalayan Journals,' are far too numerous to be enumerated; for example, in a marginal note there is the following statement:—"The ground around my tent was covered with Grasses and Sedges, amongst which grew Primroses, Thistles, Speedwell, wild Leeks, *Arum*, *Convallaria*, *Callitriche*, *Oxalis*, *Ranunculus*, *Potentilla*, *Orchis*, *Chærophyllum*, *Galium*, *Paris*, and *Anagallis*, besides cultivated weeds of Shepherd's-purse, Dock, Mustard, Mithridate-cress, Radish, Turnip, *Thlaspi arvense* and *Poa annua*."—*Himalayan Journals.*

TEUCRIUM CHAMÆDRYS.

Will Mr. Fowler kindly inform the readers of the 'Phytologist' in what sort of locality it is that *Teucrium Chamædrys* grows in Lincolnshire? whether the plant is confined to one spot, and plentiful where it is found? and also how far removed from the nearest habitation, or ground formerly quarried?

The suspicion attached to its indigenous origin by Hooker, Watson, and A. De Candolle, whilst Babington lets it pass without challenge, renders every new locality worth investigation. A.

Where is the account of Professor Buckman's discovery, that *Trifolium pratense* and *T. medium* are identical as species, or constitute but *one*, not *two* species?—See 'Phytologist,' vol. ii. p. 114, where Professor Buckland is erroneously entered for Professor Buckman.

Communications have been received from

J. Van Voorst: John F. Fowler; Professor Bentley; J. Barton; Geo. B. Wollaston; Z.; H. Stock: Rev. W. T. Bree, F.L.S.; W. P.; C. C. Babington, F.R.S.; B.; Huddersfield; A. G. More, F.L.S.; Sydney Beisly; W. F. Buist; Joseph Woods, F.L.S.; Censor.

BOOKS RECEIVED FOR REVIEW.

Natural History Review for January, 1858.
The Atlantis, or Register of Literature and Science, for January, 1858.
Sowerby's Grasses; Parts 4 and 5.

ERRATA.

Page 281, line 16, for "*Mona-ma*" read "*Mona-rua.*"
Page 344, line 9, for "*trigonum*" read "*trigynum.*"
Page 344, line 2 from bottom, for "Loch *Flagan*" read "Loch *Etagan.*"

ON THE BOTANY OF THE CLENT HILLS.

It may be that the very name of Clent is as utterly unknown to the majority of the readers of this periodical as it was to ourselves only a few months ago. Yet within sight of these hills, and even within a moderate distance of their summits, there are places famed in the political and literary history of our nation. There are connected with this district, associations and events which have a fame as wide as the world; or at least, their reputation is as extensive as the language and literature of England. But our intention is not to write on such grand subjects as these; we are content with a humbler theme. The praise of statesmen and orators, of historians and poets, who have contributed to the renown of their country and of this their natal soil, or who have honoured it by their notice, is neither to be said nor sung by us. We have something to say, in an easy way, about the vegetation, the soil (geological formation), picturesque interest, antiquities, and present state of this remote and original corner of old England.

The Clent Hills are an isolated group on the left of the high-road between Stourbridge and Bromsgrove, in Worcestershire. They are nearly equidistant from Birmingham, Dudley, Kidderminster, Droitwich, and Bromsgrove. From London they may be reached by the London and North-western or by the Great Western Railway, either *viâ* Birmingham, Dudley, and Stourbridge, or by Oxford, Worcester, and Wolverhampton, leaving the rail either at Churchill or at Stourbridge station. From the latter station the ride or drive along the base of the south-western side of the Clent Hills is very attractive. They rise rather abruptly in some places, and their sides and summits are beautifully fringed or crowned with handsome trees. Clent church is four miles from Stourbridge, through Old Swineford, Pedmore, Hagley, and Holycross. From Churchill station the distance is about three miles and a half, over a flat tract, which is terminated by the hills of Clent. To such tourists as are gifted with a pair of sturdy legs, and are not encumbered with much luggage, we would recommend walking from Dudley through Hales Owen. This would afford an opportunity of seeing the country to a great distance, for Dudley is situated on a considerable elevation, and in clear weather commands an extensive view. Birmingham is said to be the highest or most elevated town in England. Dudley is scarcely, if at all, inferior. The distance from this town to Hales Owen is about five miles, and the road passes close to the Leasowes, one of the most celebrated seats in England. From this latter town the road to Clent is easily found. The two Holly-trees on the summit of Walton (Waldon) Hills are the landmark, and seen for miles on all sides. The way passes through Uffmore Forest, and close by St. Kenelm's church, and either through the pass, Clatterbatch, or along the ridge of the Walton Hills. The distance is about four miles from Hales Owen, or about nine miles from Dudley. From Birmingham the walk or ride is eleven miles, and the traveller should leave the road at the Bromsgrove Lickey, and strike across the country to the right for Clent, keeping the two Hollies above mentioned a little on his right-hand. The distance from the Bromsgrove Lickey is about four miles, and the lanes and country here are very beautiful.

The Clent, with the Lickey and other hills, enclose a portion of the great basin of the Severn. They are about due north of the Cotswold, and at least fifty miles distant from the latter. They are also north of the Malvern Hills and a point or two east, or, as a seaman would say, north-and-by-east, or between that and north-north-east, and they are distant from the latter, the Malverns, above thirty miles. They are north-east of the Aberley and almost east of the Clee Hills, and are distant from these about twenty and fifteen miles respectively. In clear weather all these hills or series of hills are visible from any part of the Clent Hills. At sunrise the white houses of Malvern at the base of the hill are distinctly visible when the atmosphere is clear, and especially when the sun is shining on that lovely spot.

As it is intended to write a brief account of the geological formation of these hills and their adjacent valleys and plains, as well as of their native productions, we will commence systematically, that is, begin at the beginning. As there is a necessary relation between the soil and the plants which the soil produces, so there is a necessary relation between the soil and the subjacent (underlying) rocks. These constitute everywhere the substratum or the bases of the earth on which both plants and animals grow and live. The Clent Hills, from Stourbridge, or rather, from Old Swineford, through Pedmore, Hagley, and Belbroughton, are composed of Red Sandstone. Some geologists say, of the New series, and some say, of the Old: "Who shall decide when doctors disagree?" This rock "crops out," as they say, or comes to the surface, at the end of Stourbridge, the Wolverhampton end, and the cutting for the road, towards Brettel Lane, has exposed many yards of this rock, which appears to consist of a solid mass, as sandstone rock usually appears. The same kind of rock crops out here and there all along the road from Stourbridge to Belbroughton, and there are several cuttings, especially a rather deep one, near Holycross.

Be the name of the rock what it may, or rather what it may please geologists to say it is, the soil itself gives unmistakable traces and proofs of its origin; it is as red as a brick, and in rather depressed parts, after much dry weather, it is nearly as hard. On the north side of the hills, that is, towards Hales Owen and Dudley, there is much stiff land, especially where the limestone crops out or approaches the surface. On the Lickeys the grit is the underlying rock, and the soil, consequently, is of a more friable nature than that which owes its origin to the New or Old Red. Thus far for the geology.

The external features of the country at and about Clent are very picturesque. The hills in the direction of Stourbridge skirt and overhang Hagley Park, which adjoins Clent Hall Park and Clent Castle, as it is called. The hills in the direction of St. Kenelm's, Hales Owen, Dudley, etc., extend from the church of Clent in a direction which is nearly south-west and north-east, and the distance from these two extremities is between two and three miles. The parish church is at the south-west end of the pass or glen or valley which separates the Clent from the Walton Hills. This valley is very deep and narrow, with an inconsiderable stream of water, which, however, is often swollen into an impetuous torrent by heavy rains that fall on the hills. The Clent Hills are rather higher than the Walton, and the views from the former are preferred by lovers of the picturesque. From their centre there is obtained a close, almost a bird's-eye view, of Hagley Hall, groves, woods, park, village, rectory, and cottages, on the one hand, and on the other side the Clatterbatch or Clent valley, with its church, mill, farm-houses, and cottages. These are the proximate views. The Walton Hills, as already noticed, lie on the other side of this narrow vale, and almost exactly parallel to the Clent Hills. The spire of Hales Owen Church, the woods of Dudley, always enveloped in a smoky cloud, the Leasowes, or Shenstone, as it is called here, lie to the right of the latter place.

In a southern direction, when the weather is fine or when the atmosphere is clear, are seen the Cotswold Hills, at least fifty miles distant, and on the observer's right, and nearly in the same direction, lie the Malvern and the Aberley and Clee Hills in succession. The tract of country, the broad vale of the Severn, lying between the observer and the hills above mentioned, is very clearly seen. But he wants the assistance of some person acquainted with the situation of places to be able to make out the towns of Evesham, Stourport, Droitwich, Bromsgrove, Kidderminster, and Bewdley, which, with the city of Worcester, are all situated between the hills on the right bank of the Severn and that chain of hills on the left bank of which the Clent Hills form a considerable part. The Walton Hills afford charming views on the north and north-west, viz. of Belbroughton, Fairfield, etc., and especially of the beautiful vale between the Waltons and Fairfield hanging woods, and Fairfield Heath or Common.

One of the most striking scenes is the furnaces, of which there are many between and about Dudley, Stourbridge and Kidderminster. In broad daylight these are, to the lovers of Nature and of her productions, smoking nuisances. To the fortunate children of Mammon, and to the sons and daughters of toil, they appear under another aspect. When murky shades surround the hills, and darkness assumes the ascendant, these furnaces flare up, enlightening the country for miles round, tinging the clouds with their unnatural ruddy glare.

This scene from the Walton Hills, in a fine, clear, moonlight night (it is not comfortable nor very safe walking on the Waltons in pitchy dark nights), is not without interest to a visitant or stranger, and is, besides, suggestive of various reflections of a mixed character, but these had better be retained than divulged. Reflections of a mental or moral nature are apt to be tinged by the medium through which they pass or from which they are reflected, and our business now is with facts, not with feelings. But if these terrific fires do not remind the reader of classical English poetry of that dismal place where the palace of Pandemonium was erected, we do not know anything or any place on earth that will. There are gleams and flickers from the heaps of coal burning into coke, blazes and sparks from the tall and from the stumpy chimneys, and a steady red glare from the furnaces themselves.

In broad daylight these are not noticed, except when in proximity to the fiery objects. Clent itself is singularly free from all these necessary nuisances. A single manufactory of scythe-blades at Belbroughton, two or three miles distant, is the only place which reminds one of Vulcan's sons, or of the grand workshop of the world.

Before concluding this, the picturesque part of our theme, we venture to quote a few lines from the elegant and amiable poet of the 'Seasons.' That it refers to the Clent Hills and their views and scenic beauties there is ample proof, both from the beginning of this eloquent address to the noble and courteous occupant and owner of Hagley Hall, as well as from the description of the scene :—

"O Lyttelton, the friend! thy passions thus
And meditations vary, as at large,
Courting the Muse, thro' *Hagley Park* thou stray'st,
The *British Tempe!* There, along the dale,
With woods o'erhung, and shagg'd with mossy rocks,
Etc. etc. (A poetic embellishment.)

. . . .

Meantime you gain the height from whose fair brow
The bursting prospect spreads immense around;
And snatch'd o'er hill and dale, and wood and lawn
And verdant field and darkening heath between;
And villages embosom'd soft in trees,
And spiry towns by surging columns marked
Of household smoke, your eye excursive roams,
Wide stretching from the Hall in whose kind haunt
The hospitable genius lingers still,
To where the broken lanskip, by degrees
Ascending, roughens into rigid hills;
O'er which the Cambrian mountains, like far clouds
That skirt the blue horizon, dusky rise."

If any readers of Thomson will compare this brief description of the mossy rocks, Clent-hill views, *British Tempe* and all, with the same poet's description of the scene from "*delightful Shene,*" including Richmond, *lofty Harrow, majestic Windsor, Ham's embowering walks,* matchless vale of Thames, Clermont's terraced height, Esher's groves, Twitnam's bowers, etc. etc., with the concluding noble apostrophe to the whole, commencing with—"Heavens, what a goodly prospect spreads around!" etc., he will be struck with the inferiority of that portion quoted, not absolutely, but relatively to a description of scenery with which the poet was well acquainted. The views from Richmond Terrace and Shene Hill are extensive, rich, and varied; but they are not equal to the views from the hills of Clent, either in extent, variety, or picturesque beauty. (See Thomson's 'Seasons,' Summer, line 1400, and the same author's Spring, line 901.) To our taste the following very brief description, from a rural and nameless poet, is more graphic than that copied from one whose name has been long enrolled among the most ingenious of Britain's distinguished sons and panegyrists. The observer is supposed to be on the very summit of Clent Hill, properly so called, whence—

> "The eye now roves o'er Hagley's towers
> And Dudley's clouds of smoke,
> To Shenstone's walks and sylvan bowers
> And Uffmore's groves of oak."

This may not be very poetical, but it is very true. These are among the most contiguous and prominent objects in the picture. We may presume that upwards of one hundred years ago, for it is more than a century since the death of the great poet of the 'Seasons,' Dudley was not crowned with smoke as it is now, and that Shenstone's walks and sylvan bowers, if in existence, had not reached the celebrity they now enjoy. But there is a want of reality about Thomson's description of Hagley and Clent which no amount of genius will be able to supply.

The eminence of Sir Walter Scott, as a descriptive poet, is perhaps mainly due to his minute acquaintance with the individual scenes whose descriptions so often delight the readers of his poetry, and which have conferred immortality on simple legendary or traditionary stories.

There are only four lines in the last quotation, and there are just as many objects briefly described. Hagley Hall is flanked by a tower at each corner of the ample quadrangle of which it consists. The ancient town of Dudley is enveloped in a cloud of smoke, and neither its woods nor its ruins are visible; Shenstone's walks and bowers form, with its white cottage-like mansion and its amphitheatre of hills, a very pleasing portion of the landscape. Uffmore's groves are celebrated in the simple verse of Shenstone, from whom the Leasowes have borrowed the poet's name; and, what is less creditable to posterity, is that the place is still more famous than its very author, who was both a landscape artist and a poet.

The following quotation from the poet of the Leasowes is simple enough, *e.g.*:—

"Born near the scene for Kenelm's fate renowned,
I take my plaintive reed, and range the grove;
And raise the lay, and bid the rocks resound
The savage force of empire and of love.
Fast by the centre of yon various wild,
Where spreading oaks embower a Gothic fane,
Kendrida's arts a brother's youth beguiled;
There Nature urged her tenderest ties in vain."

Happily for Shenstone's fame, his poetical reputation is founded on better lays than that from which the above is quoted. The renown of being the tragical scene on which poor *Kenelm's fate* was decided might inspire a lay of a loftier nature than that raised; but it would be like the "lay, loud as the surge which lashes Lapland's rocky shore," which we remember reading about in the 'English Bards' of Lord Byron, if it "bid the rocks resound the savage force," etc.

The rocks are far distant from Uffmore's groves. If the lay was loud enough to be heard by the rocks, the rocks could not reasonably be expected to render back the lay in any audible sound, much less in articulate word. The oaks that embowered the sacred *fane* have long disappeared, and their place is now supplied by meadows and cornfields.

The vegetation of this portion of the country—we mean its natural plants, not the cereals, nor agricultural produce, nor the productions of its orchards and gardens, but its wild native growth—is not very striking, neither in itself, nor as characteristic of the soil on which it grows.

The species are neither very numerous nor very interesting to the botanist: to the mere economist they have no interest at all.

Their chief interest is that they belong to a district which has never been botanically investigated (*pace* Mr. Lees). If any botanist has ever visited these parts of Worcester-, Stafford-, and Shropshires, he has not recorded the results of his investigations, whatever these may have been.

As we have no intention of permitting any of our labours in the behalf of science to descend into oblivion, if we can prevent this undesirable consummation, we record them for the benefit of our contemporaries and of posterity. We visited Clent late in the year, viz. September, and resided there during the greater part of that month, and left before the middle of October, hence we are unable to say anything about the spring flowers. Many of the summer flowering plants were observed with the entire autumnal vegetation of the district; but, as a systematic catalogue or a scientific description of species would be unreadable, the most prominent plants will alone be noticed, and they will be arranged rather by the places where they grow, or by their *habitats*, as our ancient botanists would say, than by any modern classification: thus, first, the vegetation of the hills; second, that of the woods; third, that of the fields (the cultivated ground); and, fourth, that of the bogs, marshes, and watery places.

The most remarkable plant of the Clent Hills is the Foxglove (*Digitalis purpurea*). The Latin or scientific name is enclosed in a parenthesis, or it is italicized: our scientific readers know that this is necessary, because the scientific or Latin name is recognised by all who are acquainted with the science; the vulgar, or popular, or English name, is variable. This may not be the case with the Foxglove, though it has more names than one, but it is so with several plants which have to be entered in this list. The Foxglove grows everywhere in this island where the soil is more or less gritty or sandy. On these hills it luxuriates; wherever the turf is pared off, or the Furze burnt, there a colony of Foxgloves immediately springs up; and, as they are biennials, *i.e.* plants of two years' duration, the seedlings flourish on the bare soil when the turf is broken, or they germinate among the ashes of the burnt Furze. We have seen tall plants of this species here and there, but we never saw any so gigantic as in plantations on the Lickey Hills. Their average height was two yards, and, consequently, many were higher than that estimate. The Moth Mullein, two species (*Verbascum Thapsus* and

V. nigrum), are also very plentiful on all the hills, but especially the black Moth Mullein. In most parts of the country this is the rarer plant of the two, but about Clent it is more plentifully dispersed than the one which is more common elsewhere. These plants have the same habit or mode of growth as the Foxglove has, but they differ very considerably in the shape and colour of the blossoms. The flower of the Foxglove is tubular and inflated, not much unlike the finger of a glove, hence its name. Foxglove, it is believed, was once called Our Lady's Glove; Our Lady is a synonym of MARY, or the Blessed Virgin, the Mother of our LORD. The flowers of the Mulleins are all more or less flat, or the limb is round and expanded, having five rounded lobes, and a very short and narrow tube. The colours of the Mulleins are either yellow or cream-colour, or sometimes with a tinge of purple. The Foxglove has a red blossom, curiously dappled in the inside with white. The white-flowered variety of the common Foxglove is very rare in a wild or uncultivated state. To the same family of plants, viz. *Scrophulariaceæ*, or the Figwort family, belongs the Knobby-rooted Figwort (*Scrophularia nodosa*), a plant which agrees with the Foxglove and the Mulleins in their straight, upright, taper, rod-like stems, and in the shape and position of their leaves; they, however, differ materially in their inconspicuous, green, purple-tipped flowers. This plant is not so common on the hills as the former-mentioned, but it is occasionally met with on elevated places, especially on banks of hedges and similar situations. The showy Toadflax (*Linaria vulgaris*) also grows abundantly on the hills, where it is not always confined to hedges, but is occasionally found on pastures. The stem of this plant is stout and erect, like the former, but its flowers resemble those of the garden flower Snapdragon, in having a lip which closes the mouth or throat of its blossom (*corolla*). This form of flower is termed by botanists the *personate*, from *persona*, a mask, because of its fancied resemblance to this apparatus. The garden Snapdragon (*Antirrhinum majus*) and Ivy-leaved Toadflax (*Linaria Cymbalaria*) occur on old walls about Hagley, but they are not very common. The Water Figwort grows plentifully in the vicinity of water, in low moist places. There is also another small plant (*Linaria Elatine*), of the same natural order, found here and there in cornfields, but it is not so common on the hilly fields as it is on less elevated cultivated places. Many of these plants differ much in habit and external appearance from the Foxglove, the Mullein, the Figwort, and the common Toadflax, but they all agree in the shape and nature of their seed-vessels, and in the multitude and minuteness of their seeds. The fruit, or seed-vessel, is *ovate* (egg-shaped), having two cells and two small holes at the apex, which serve for the emission of the seeds. Another conspicuous plant of the Clent Hills is the Dwarf Gorse (*Ulex nana*). The common Gorse of the south of England is not the plant which grows on these hills, although the more common form of the Gorse (*Ulex europæus*) is not altogether absent in these parts. The plant of the Clent Hills is of a humbler and more compact growth, and always flowers late in summer, or in the autumn. The common Gorse flowers in spring. Wandsworth or Clapham Common is now gay with the flowers of the Dwarf Gorse: in October and November it is in perfection. The hedges about the fields on these hills abound with the Wild Rose, of which there are several species, the common Dog Rose (*Rosa canina*), the Woolly Rose (*R. villosa*), etc. These, of course, were all in fruit when we were at Clent. The Crab-tree (*Pyrus Malus*) is also plentiful, and bears large crops of apples, many of these being but little inferior to the cultivated sorts in beauty, but their flavour was very ungrateful. One of the handsomest plants of these uplands is the Musk Mallow (*Malva moschata*). The flowers of this species are pink, rarely white, nearly as large and handsome as the flowers of the famed domestic Geranium, the inmate of our greenhouses and parlours. This is the most common plant of the Order in these parts; the other two common sorts, the Wild and the Round-leaved Mallows (*M. sylvestris* and *M. rotundifolia*), are less abundant about Clent than the Musk Mallow, which is the least common in the south of England. The plants of the Mallow Family are furnished with a very tenacious fibrous bark, which would probably be available in constituting a material for the fabrication of paper. The fruit consists of a series of one-seeded carpels (small fruits), arranged circularly around a central axis. This is vulgarly called, by children and others, *cheese*, and the plant is called the cheese-plant. It resembles cheese only in its form; it need scarcely be stated that it has not a trace of cheesy flavour. Geraniums, which abound on limestone soils, are not common here. The

Dove's-foot Crane's-bill (*Geranium molle*), the Dissected-leaved Crane's-bill (*G. dissectum* and *G. pusillum*), were almost the only representatives of the Order met with in this district.

But we met with one interesting plant of this family, viz. *Erodium maritimum*, the maritime or seacoast Stork's-bill. This plant, which, like several species, is restricted to maritime localities, was noticed in this inland county not less than sixty miles from the estuary of the Severn, and more than this distance from any seacoast. When this fact was stated in the hearing of certain natives, and when it was explained in connection with the saline springs of Worcestershire, the question was asked if it would be a prudent speculation to dig in hopes of finding a salt spring on the spot where the Sea Stork's-bill was seen growing. We enforced our view by stating that the salt springs of Droitwich, the richest in England, were distant only about ten miles from the Clatterbatch, where this plant grew, but of course declined to become sponsor to the opinion that a salt spring existed between the church and hills of Clent in the centre of Clatterbatch. Yet it is not improbable that such a spring might be discovered at Clent if a well of sufficient depth were dug. It would be hazardous to say how deep this digging should be.

The most considerable and profitable vegetation of the Clent Hills is doubtless the grass with which they are covered. Their turf is perhaps the finest that was ever seen. The turf on our South and North Downs approach it, but on these latter sheep-pastures there grow many plants or herbs which are not grass. On the hills of Clent the turf is almost entirely composed of a very few grasses, mixed with some Wild Thyme, and a few aromatic herbs, where the ants have raised slight elevations on the surface.

The common grass here is the *Festuca ovina*, the Sheep's Fescue grass, the finest possible grass for a lawn. Of this we had ample proof, for the lawn of the cottage where we were domiciled for the period of our sojourn here, was covered with turf from these hills, and though it had been neglected (unmown) for two months, the grass was indeed rank, but not coarse.

This is one of the best pasture grasses for dry upland pastures. It has many succulent narrow root-leaves with a very small bent, which never is suffered to be developed when the pasture is kept closely cropped. These pastures about Clent might be improved by grubbing up the Furze, the only plant which covers any considerable part of the surface; for the Foxglove is not able to maintain its place in the thick grassy sward. A very little cost incurred in taking up the Furze-roots and in pulling up the young Furze-plants that will spring up for some time after the present crop of Furze is destroyed, and in a general superintendence of the pasture for a few years, would be well repaid. After a short time, say half-a-dozen years, the Furze might be entirely eradicated, and the Sheep's Fescue, a valuable pasture plant, would take its place. The Furze here is of little or no value for fuel, and if it were desirable to cultivate a little of it for feeding horses or cattle, it might be kept in a separate portion or in a more worthless part of the hills. These hills are common pasture land. Every owner, and, of course, every occupier, has the privilege of grazing one or two sheep for every acre of land he owns or rents. Hence it is not very probable that our scheme for improving the pastures of these hills will be adopted. "What is everybody's business or interest is nobody's business or interest."

Another grass, very durable for a lawn, is one of the Hair-grasses (*Aira flexuosa*), but it is worthless as a pasture grass, for it would not retain its hold on the soil where other suitable grasses will grow.

Alchemilla vulgaris, Our Lady's Mantle, occurs only occasionally on the Clent Hills, but on the Lickeys, four or five miles from Clent, this interesting plant is very common. On the latter hills, although only recently enclosed and partially cultivated, this plant occurs very abundantly. It may be readily distinguished by its beautiful yellowish-green, lobed, and regularly serrated (snipped) leaves, as well as by its small, inconspicuous, greenish flowers. It belongs to the Natural Order *Rosaceæ*, the Rose family, to which it bears only a very remote resemblance, whether we regard the aspect of the plant, its vegetable structure, or its fructification. It forms, however, a section of this large Order.

Where the rock crops out, and only there, a few plants of the Hawkweed genus (*Hieracium*) grow. These represent a great section of the great Order *Compositæ*, the Compound family. One of the Hawkweeds is a popular garden flower, and it may serve as an example of the genus and even of this section of the Order. The Hawkweeds are not abundant about Clent. In limestone tracts there are numerous examples of distinct species, and many individuals of each; but here they are comparatively few, both in the number of species and of individuals. We were only able to identify *Hieracium boreale, H. vulgatum,* and that one common everywhere, *H. Pilosella,* the common Mouse-ear.

This latter grew abundantly on the Clent Hills, and kept in flower to a much later period of the season than it does in any other locality where we have seen it grow.

One plant of this Order *Compositæ,* viz. the common Tansy, we noticed in a much more elevated position than that which it commonly occupies. In the south of England it is usually confined to riversides, on dry places indeed, but seldom far from streams. Here it was growing luxuriantly on the very summit of the Clent Hills. Good King Henry was also gathered nearly at the same elevation. This plant is mostly found near farmsteadings, in grassy lanes, where the soil is highly nitrogenized. In the 'Cybele' the range of this plant is from 100 to 200 yards. The latter number may be safely raised to 300.

In the fields on these hills—for in parts they are cultivated—the common Charlock (*Sinapis arvensis*) was of course common among turnips and potatoes. But this was accompanied here by a much scarcer plant, and one which we believe has never been recorded as growing at so considerable an elevation: we mean Treacle Mustard (*Erysimum cheiranthoides*). This was only slightly less abundant on the upland cultivated fields of Clent than the common Charlock is everywhere. Its upper vertical limit may be stated at from 250 to 300 yards, instead of 100. The wild Radish (*Raphanus Raphanistrum*) was plentiful in similar localities. So was the Pennycress (*Thlaspi arvense*), a plant of very local occurrence, though it has a very considerable horizontal range, being found in every county of our island, from Kent to Caithness. Notwithstanding this its wide distribution, it is one of the *rariores*—scarce plants of our island; as such, its occurrence is always registered by every botanist.

Senecio sylvaticus, one of the Ragweeds, was also a very abundant plant all round the fields, both on the hedge-banks, and about the margins.

When we mention the Fumitories (*Fumaria officinalis* and

F. capreolata), Field Madder (*Sherardia arvensis*), and Parsley Piert (*Alchemilla arvensis*), we have nearly exhausted the common plants of these hills. A large proportion of them are annuals and biennials.

Before entering the names of the woodland or sylvan plants, something may be stated about the woods themselves, and about the timber which is grown in them; for, in an economical point of view, this is the most important part of their produce. Uffmore Forest, between Clent and Hales Owen, is, as the poet sings, composed of groves of Oak. Many other forest trees are intermingled with the Oaks, but these latter are the principal ligneous production of this woody tract.

The soil, which is a stiff clay, is very suitable for bearing trees of this kind. Some rather large plantations of Larch and Scotch Fir (*Pinus sylvestris*) have been made recently by Lord Lyttelton, the lord of the manor; these are about the hills of Clent and Fairfield. Either Oak or Larch and Scotch Fir compose the staple of the woods here. The Ash is very common, and is a tree which thrives well in these parts, but we did not see any entire woods or plantations of it, nor any in which it formed the chief part of the wood.

The Chestnut (*Castanea vulgaris*) and the Sycamore (*Acer Pseudo-platanus*) are common in parks and about lawns, as well as plentiful about farmyards and in hedges. The Poplar is also very common, but not the Poplar with erect branches (the Lombardy Poplar), which is so common in most parts of England, and especially in the vale of Belvoir, in Rutland and Nottinghamshires, where there are lines or rows of this tree extending for miles, and as straight as the trees themselves. The Poplars here are in habit more like the White Poplars (*Populus alba* and *P. rotundifolia*) or the Black Poplar (*Populus nigra*). This species of Poplar, or some species resembling it, spreads through Shropshire, and is plentiful in the Welsh counties of Denbigh and Montgomery.

The Mountain Ash (*Pyrus Aucuparia*) is also abundant in the woods and hedges here, and has all the appearances of being self-propagated. Another very showy shrub at this season—the autumnal—is the Guelder Rose (*Viburnum Opulus*). The berries or fruit of both these shrubs are extremely ornamental, but especially that of the latter.

Many of the plants already mentioned grow in the woods. The Foxglove and the Knobby-rooted Figwort attain a very great size in shady places, usually averaging two yards in height, and occasionally they are much taller. In summer and autumn *Asperula odorata,* the Sweet-smelling Woodruff, is one of the most abundant woodland plants. It is also common in hedges. This herb is remarkable for retaining its fragrance for many years, though it has only an almost imperceptible odour when recently gathered. As it dries gradually, it gradually yields a rather powerful but agreeable smell of new hay. It may be readily distinguished from all our native wood-wildlings by its whorled leaves, arranged around the frail, straggling stem like rays, or like the spokes of a wheel without the felloes, or like the radii of a circle without the circumference, and by its pretty clusters of small white flowers. When ripe, its fruit is roundish, rough with bristles, and about the size of coriander-seeds.

The beautiful *Lysimachia nemorum,* Wood Loosestrife, also abounds. This has bright yellow flowers, weak, trailing stems, and opposite, ovate (like the vertical section of an egg) leaves. Its twin sister, the Creeping Jenny of the London peripatetic florists, and the popular ornament of many windows in the suburbs of London, will help those who know the latter to identify the former. The Pennywort or Moneywort (*Lysimachia Nummularia*), or Creeping Jenny of the London cries, is not nearly so delicate and lovely a plant as its woodland relative. The latter, if it would bear the dry and smoky atmosphere of London, would be a more ornamental plant than the former. But it loves moist air and shade; it cannot bear the sun to look on its loveliness. It always shuns the "garish eye of day," and hides its beauties in some damp, sequestered spot, where it is rarely disturbed but by those who know its worth, and by some others whose delight is to draw out merit from obscurity. But we are dealing with plants, not with morals.

The Wood Spurge (*Euphorbia amygdaloides*), and the officinal Valerian, the Wild Honeysuckle, the Dog's Violet, and several species of St. John's-worts, grow in almost all woods, and they are not wanting in the woods of Clent.

One of our critical plants, as they are now called (*plantæ criticæ*), is plentiful about Uffmore Forest, viz. *Hypericum dubium,* a species which approaches very closely to *H. perfo-*

ratum, the common St. John's-wort, with which it was indeed united.

Uffmore Forest produces a still rarer plant than this, viz. one of the *Orchids, Epipactis media* of Babington. This is the only place where we have seen this form or species, if it be a species, and here it is very scarce. Another form, like the *E. ovalis* of the same author, is not very uncommon.

These Orchids are objects of great curiosity. The form of their blossoms is very peculiar, and hence the strange names which they bear: the Bee, the Fly, the Spider, the Monkey and the Lizard Orchis, are examples. These beautiful species abound about the chalk-pits of Surrey and Kent, also around the fields on our chalky downs. Guildford, Dorking, Reigate, Cobham in Kent, Maidstone, Folkestone, and many other parts of these two counties, to which may be added Sussex and Hants, abound with Orchidaceous plants. They are very impatient of cultivation, and cannot be kept for any length of time in a garden. They are unhappily decreasing fast. The rapacity of collectors, as well as the extension of cultivation, threaten the very existence of some of the rarest species. This is not likely to happen to our favourite of Uffmore Forest. The forest there is likely to remain in its present condition for ages. Wood is rather a scarce commodity there, and it would be more profitable to plant trees than to uproot those that still remain. All our Orchids are terrestrial, that is, grow on the ground: whether any of them are attached to the roots of trees or other plants we will not now discuss, but many exotic Orchids are *epiphytes* (grow on trees). These have of late been extensively cultivated by the affluent classes who are fond of plants, and the prices realized at some recent sales (Mrs. Lawrence's and the Horticultural Society's) remind us of the tulip-mania of the last century. Several of these foreign plants realized prices varying from £10 to £70: rather costly pets. The keep of these beauties is more expensive than that of a large family of children, even in these times when bread, happily, is cheap. But those that have "plenty of meal may indulge themselves with thick pudding," or "they who have much pepper may have savoury soup," as the old proverb teaches us. Those who can pay for their hobby have a good right to ride it. We may canter away on ours, but we should not expect our readers to mount their cockhorses and canter after us; and therefore we will cut short this part of our notice of the Clent Flora. The Campanulas or Bell-flowers are reported to abound in that part of Worcestershire where we spent a calendar month; but if they do, we were too late to see more than the pretty Harebell of the Lea, the "Bluebell of bonnie Scotland." A single specimen of *C. patula,* and two or three of *C. rapunculoides,* were collected, but *C. latifolia,* except in gardens, and *C. Rapunculus,* never crossed our path. We do not say that these do *not* grow about Clent, but we did not observe them.

The moist spots, the ditches, and mill-ponds, yielded several varieties of Mint. *Mentha hirsuta,* and, we believe, *M. viridis,* Spearmint, Bur Marigold (*Bidens cernua*), we found in far greater abundance than *B. tripartita,* which is the commoner of the two species here (Surrey). In one mill-pond, near the Churchill station, we had the good hap to discover both our Water Pepperworts (*Elatine hexandra* and *E. Hydropiper*). This is almost the first public notice of these plants as natives of Worcestershire. The latter-mentioned species has hitherto been found only in two counties, Surrey and Anglesea. The number of counties where these rare aquatics grow may now be increased by adding Worcestershire to the number from which it has already been reported. Here we must conclude our botany of Clent, and we hope our readers are not ready to cry, "*O, jam satis!*"

TRANSMUTATION OF SPECIES.

In the article upon Transmutation of Species in last month's 'Phytologist' (p. 373), Verax suggests that the wild *Brassica oleracea* should be considered a degenerate form of the original Cabbage, which he supposes to have constituted part of the food of original man. There are, however, some very strong objections to this view of the matter. In the first place, botanists are, I believe, agreed to consider the wild form of Cabbage the most perfect, as being best able to maintain itself and reproduce its kind: so that it is easy to draw a parallel very different from Verax's, since if man was "originally quite as good or better than he is now," his *better* state should correspond with the *more perfect* vegetable, just as his *uncivilized* condition with the *unculti-*

vated Brassica, according to the received opinion. In the next place, it is difficult to see why man may not have existed at first, or even for a length of time, without either a well-hearted cabbage or bread-corn for his food: certain it is that the leaves of Sea Cabbage make a good and palatable dish of greens: and, further, the accredited account is usually thought to imply that man had no acquaintance with bread-corn until he was condemned to labour.

Besides, it is not certain that our cultivated kails and coles, etc., are all derived from the same wild plant, for De Candolle inclines to think that several wild species of *Brassica* were taken into cultivation in different countries, and that this may help to account for the existence of so large a number of garden varieties.

But the *Brassica* and *Ægilops* are improperly classed together when the proofs of the latter passing into wheat are as much disputed as the transformation of the former is accepted. And if we may believe that corn, scarcely distinguishable from cultivated sorts, has been found really wild in various parts of Asia, the *Ægilops* question will lose much of its importance, as its transmutation into wheat becomes less credible.

A.

Why Ferns should not be attacked by Insects.

One of your correspondents, S. B., inquires (p. 370) if there is any reason why Ferns should not be attacked by insects? I had frequently observed how seldom the fronds of Ferns were disfigured by insects, both in the field and herbarium, and the properties detailed below seem to explain the circumstance most satisfactorily.

Ferns possess an active principle, consisting of a volatile oil and resin, which has destructive effects upon some of the radiate and annulose animals. Since the time of Dioscorides the Male Fern has been celebrated as a vermifuge. The rhizome, in the form of powder or decoction, was usually exhibited, and probably the root-stocks of all the common species, as at the present time, were collected by herbalists. Like many other valuable indigenous remedies, this fell into discredit from the large dose required, the uncertainty of the preparations employed, and the fashion for exotic medicines. It has been recently discovered that the oil possesses all the active properties of the plant, and is of uniform strength. This is undoubtedly the most successful agent yet known for expelling the common tape-worm (*Tænia solium*), and also the species found locally on the Continent (*Bothriscephas latus*). Perhaps no animals are more tenacious of life, or difficult to dislodge, than these troublesome parasites. The head is fixed to the mucous membrane of the gut by recurved hooks; and, if this remains, the after-segments are soon reproduced as abundantly as ever. Now, the species of *Acarus*, *Anobium*, etc., most destructive to the herbarium, are not far removed in structure from the *Entozoa;* and, in the absence of direct experiments, we may suppose them to be equally obnoxious to the poisonous properties of the Fern.

It is, perhaps, not generally known, that the rhizome of this Fern (*Lastrea F.-mas*) is the best substitute for hops in beer; and for persons suffering from worms it might prove of benefit.

B. Carrington, M.D.

"*Monstrosities of* Scabiosa succisa."—A variety of *Scabiosa succisa*, with three or four rays, is not uncommon in Yorkshire. I found at Scarborough, last August, one specimen of *S. Columbaria* with sixteen rays, and many of these again bifid, and giving off lateral heads of smaller size, with united bracts. I have always looked upon these departures from the normal type as indicating an affinity with *Rubiaceæ* rather than *Umbelliferæ*, but they may be considered as approaching both.

B. C.

JUNGERMANNIA OBTUSIFOLIA IN SCOTLAND.

To the Editor of the 'Phytologist.'

Sir,—In July 1855, and again in August 1857, I found *Jungermannia obtusifolia*, Hooker, in the neighbourhood of Dunkeld, growing on the ground, in a yellowish, sandy, clay soil. I find that this plant has before now been noticed as a native of Scotland, though it seems to be rare both in England and Ireland. The fruit is perfected in Spring, but in August the perianths were still abundant.

W. F. Buist.

St. Andrew's, Fife.

THIRSK NATURAL HISTORY SOCIETY.

Botanical Exchange Club.

The monthly meeting of the Thirsk Natural History Society was held on the evening of Wednesday, the 3rd of March. Mrs. Alban Atwood, of Knayton, N. Yorks., was duly enrolled as a member of the Botanical Exchange Club.

Mr. J. G. Baker read the paper of Mr. Babington on the Gormire *Epilobium,* given in the March number of the 'Phytologist,' and furnished the following further notice of the plant:—

"I am very glad that Mr. Babington has taken in hand the Gormire *Epilobium,* and must apologize for omitting in my former note upon it (Phyt. N. S. ii. 18) to make mention of his paper in the 'Annals,' which indeed I have not had the opportunity of seeing, and only knew through the notice of it which occurs in the last edition of his 'Manual,' where no allusion is made to the Gormire plant.

"The hypothesis of the hybrid origin of the plant I have no doubt he would abandon as untenable if once he saw the station. If that theory were correct, one might expect to find only a few stems of *ligulatum* scattered amongst a profusion of *obscurum* and *palustre.* The facts of the case are, that *ligulatum* grows for some distance along the shore of the lake in that degree of plenty that I have at different times brought away a moderate-sized vasculum-full without incurring any risk of damaging the locality, and that neither *obscurum* nor *palustre* occur there at all.

"With the theory of hybridity, the idea of two forms, one produced by the action of the pollen of *E. obscurum,* the other by that of *E. palustre,* of course falls to the ground. I cannot say that I have ever been able to recognize two different forms of the plant, or to trace between different individual specimens of it any further variation than might fairly be attributed to difference of season and situation. The little lake is almost entirely supplied by rain, and drained by evaporation, and is, consequently, subject to considerable variation of level, so that the plant, as is the case more or less with almost all plants of damp places, leads a life of hygrometric vicissitude. The leaves vary in width, the lines of the stem in prominence, the nod of the buds in decision; but

I fancy that the difference between the plant grown in the Cambridge Botanic Garden and that which I described in the 'Phytologist' is rather apparent than real, rather in the manner of stating the characters than in the characters themselves. For instance, what I intended to convey by calling the seeds of the plant 'oblong-fusiform, broader above,' was, that they are intermediate in shape between those of *obscurum* (called oblong-obovate in the 'Manual') and those of *palustre* (called there sub-fusiform), and this is by no means inconsistent with Mr. Babington's version of the case, 'twice as large as those of *E. obscurum,* they widen gradually from their base to their top.' However, I hope to procure a further supply of specimens this season, and, if so, will send Mr. Babington as good a range as I can meet with. I have not myself cultivated the plant, but garden-grown examples from Mr. Watson look far more like *tetragonum* than *palustre.*

"As regards the name *ligulatum,* it was offered as a mere suggestion in case the plant proved novel; not by any means formally proposed. It seems that here again my terminology is somewhat at variance with that of Mr. Babington, so that perhaps a word of further explanation is needed. I would call typically *lanceolate* a leaf three times as long as broad, broadest about three-quarters of the way down, and narrowed gradually towards each end. The leaves of *tetragonum* agree well enough with this definition, and I would certainly call them lanceolate rather than ligulate. Lanceolate, I observe, is the precise expression employed both by Koch and Hooker. By a *ligulate* leaf, on the other hand, I understand one in which there is an approach to parallelism in the edges, for a considerable proportion of its length. *Mnium undulatum* furnishes as good an illustration of this as I can call to mind. The leaves of the Gormire certainly do not attain this standard, but I considered that they approached it much more closely than is the case in either *tetragonum, obscurum,* or *palustre;* but, as explained previously, they are liable to considerable variation, and I have no wish to insist upon the rigid appropriateness of the name. With reference to the suggested identity of the Gormire plant with those of foreign authors mentioned by Mr. Babington, I can only say that I have not seen the 'Flora Sedinensis,' but that by Koch, Godron, and Reichenbach, *E. Schmidtianum* of Rostkovius is given as a variety of *palustre,* and by the latter author it is expressly stated to have stalked leaves and entire stigmas. Neither do I know whether *E. chordorhizum* of Grisebach is the same plant as *E. chordorhizum* of Fries, or, if such be not the case, to which of the two the name by right of priority belongs. The question of nomenclature I will most willingly leave to be settled by Mr. Babington, than whom no one is better qualified to pronounce a satisfactory decision upon it."

Mr. J. H. Davies exhibited specimens of Mosses as under :—

Cylindrothecium Montagnei, B. and S.—West Yorkshire: dry banks and rocks, about Malham and Gordale, *J. Nowell* and *Dr. Carrington.* Gloucestershire: Leckhampton Hill, near Cheltenham, *H. Beach.* Sussex: shady wood near Wiston, *G. Davies.* Westmoreland: limestone rocks near Milnthorp, *J. Nowell.*

Hypnum salebrosum, Hoffm.—Gloucestershire: shady bank at Charlton, near Cheltenham, in fruit, *H. Beach.*

Orthotrichum Hutchinsiæ, H. and T.—Cumberland: rocks near the head of Borrowdale, 1857, *J. Nowell.*

Bryum turbinatum, Swartz.—North Yorkshire: by the streamlet below the new river bridge in Castle Howard Park, 1857, *W. Wilson.* New to Yorkshire.

Reviews.

Trentham and its Gardens. With Ten Illustrations on Wood, from original Drawings and Photographs. London: Piper, Stephenson, and Spence.

In this well-conceived and well-executed description of the celebrated residence of one of our *noblesse,*—not a guide-book, for the *château,* gardens, and park are *not* open to public curiosity,—the author first gives the ancient history and antiquities of the place, then an account of the hall, next of the gardens, and lastly of the park. The following is offered as a specimen of the author's effective description of part of the gardens, in which

> "The chief aim has been to arrive at the highest point of natural perfection by the application of natural means. Looking towards the wood, the eye crosses an astonishing variety of plants, shrubs, and trees. The effect is singularly beautiful and harmonious—but it is produced by ma-

> terials whose character is not strained, or divided by anything foreign to their nature. Plants and flowers familiar to our childhood and associated with the glowing dreams of our youth, here seem as much at home as in the sunny glades of the bird-singing wood, the cottage garden, or the ripening cornfields. Ferns, white and yellow broom, furze, bluebells, foxgloves, large Scotch thistles, poppies, peonies, and a host of others, contribute to the general effect."

This would be easy and productive botanizing ground.

The following is from our author's description of the park:—

> "The botanist, too, may meet with many rare or interesting productions of Flora to reward his curious research. In the woods spring the curious Helleborine (*Epipactis latifolia*), the pretty Bitter Vetch (*Orobus tuberosus*), and the rare Leopard's-bane (*Doronicum*)" [this is rather an uncommon sylvan plant], "contrasting beautifully with its bright yellow starry flowers with the purple Foxglove." [The *Doronicum* that we know is in flower months before the Foxglove: this is not often in flower before June. The Leopard's-bane is an early spring flowerer.] "*Geranium pratense* and *Campanula latifolia*, both among the handsomest of our wild plants, may also be found in damp shady spots. In the park are some fine ancient specimens of the wild Service-tree (*Pyrus torminalis*). *Polypodium Dryopteris* grows in the spring valley. Many examples of *Aspidium*, or Shield Fern, abound in the woods."

The readers of the 'Phytologist' would read with delight a notice of the *Doronicum* which grows wild in the woods of Trentham, especially if such notice contained all the circumstances connected with the plant: for example, the space it occupies, the number of distinct places where it grows, its past history (if known), when it was first observed and by whom, whence it originated, and suchlike. The Editor would also thank Mr. Molyneux for a specimen or two, in order to ascertain to which of our two British examples it belongs, or whether it be either the one or the other or something else. While this small book on the hall, gardens, and woods of one of the grandest of England's proud mansions is warmly recommended, regret is hereby expressed that it has accidentally been so long overlooked. Every work sent to the 'Phytologist,' be it small or large, is duly noticed in good time. The omission of the present was an oversight, which, it is hoped, will not again occur. This apology, as *amende honorable,* is offered both to our readers and to the author of 'Trentham and its Gardens.'

The Grasses of Great Britain. Illustrated by J. E. Sowerby. Described by C. Johnson, Esq.

Plant collectors and historical botanists will be delighted to hear that *Stipa pennata,* the discovery of which, as recorded by Ray, Richardson, and Lawson, has been deemed apocryphal by our most distinguished critical botanists, is still to be found not far from its old haunts, certainly in the same county, *teste* the following:—"Since writing the above concerning the alleged former habitat in Westmoreland of this beautiful and curious member of the Grass family, I have been assured that it is still occasionally to be met with, growing in rock-fissures of the mountain limestone, of the wild Pennine district of the county; a circumstance worthy the notice of enthusiastic collectors of our botanical rarities. It may be further stated that my informant, a native of the county, communicated the localities, more than one, in which he himself had found it; but the pleasure of research is always enhanced by the uncertainty attending its results; and having a fellow-feeling with my friend and late pupil, against the obliteration of rare species, which has so often followed the publication of their little nooks and corners of refuge, they must here remain untold, and my kind readers rest content with a scrap of advice that no naturalist would be justified in spurning: 'Search, and ye may find.'"

This good advice it is to be hoped no reader of the Phytologist will spurn; but if the counsel of an old stager may be worth hearing, we advise, before setting out on what might eventually be as fruitless as looking for figs on thistles, that the enthusiastic collector of the botanical rarities should take the precaution of asking the author of Sowerby's 'British Grasses,' the name of his friend and informant who communicated the interesting fact. The "wild Pennine district of the county" may present no greater difficulties than Malham Cove, Gordale, or even Hampstead Heath, but it has a more formidable aspect. The recent discovery of *Dryas octopetala* in North Wales, known there and recorded upwards of sixty years, is a proof that scepticism in the accounts of discoveries made in past ages may be carried too far. Still caution is to be commended, and good counsel should not be spurned.

We have frequently seen and collected both the British *Polypogons* in Woolwich marshes, and also the more common one in Battersea fields, only as an *introduction* in the latter locality, and we think that Mr. Sowerby has not been quite so successful in representing the *tout ensemble,*—the general appearance,—or the characteristic distinction between the two plants, as he has been in his magnified figures of the single florets. There is a far greater dissimilarity of aspect than the two plates exhibit. *P. monspeliensis* has a very woolly-like, close panicle, composed of numerous secondary clustered panicles, with long silky whitish awns. The rarer species, *P. littoralis,* has a panicle not much unlike *Agrostis alba.* It has been mistaken for this latter. *Agrostis alba* has been collected, and supposed by the collector to be *P. littoralis;* and *P. littoralis* has been actually collected and supposed to be *Agrostis alba.* We never saw the secondary panicles or paniclets so dense as they are represented in the figure before us. *Gastridium lendigerum* is not so familiar to the writer of these remarks as the *Polypogons* are; still it may be suggested as a question whether the panicle of this grass be usually so dense as it appears in Mr. Sowerby's Figure 21 of 'British Grasses.' The *Milium* is well represented; so are the *Phleum* grasses and *Lagurus ovata* of Part IV.

The Editor of the 'Phytologist' was recently requested to inform a querist which of the two rival publications on Grasses he would recommend. He admitted his ignorance of the merits of Mr. Lowe's work, but stated that Mr. Sowerby's work was at least equal to the well-known works issued by his relatives and progenitors; and this, said deponent thought, was *high praise.*

In *Agrostis alba,* or in its varieties, we have an example of the importance of accessory or accidental circumstances in determining the value of a plant. Where the natural soil is retentive, rich, and well watered, this grass is said to be almost miraculously productive. In other places "it is a useless weed, wiry, nearly leafless, and unpalatable to cattle."

In one of these grasses, the term *A. canina,* literally rendered Dog or Dog's Grass, expresses the character of the plant. Our ancestors, whether of the Celtic, the Saxon, or the Roman stock, applied names to plants which implied their intrinsic qualities or utilities rather than their distinctive characteristics. The term *dog* being of more frequent occurrence in the popular nomenclature than the name of any other familiar animal, is a proof of this. For example, we have Dog Violet, which has no scent, to denote its contrast with the Sweet Violet of March; also Dog Rose, to distinguish it from the Cabbage Rose of the garden; Dog's Parsley (*Cynapium*), Dog's Cabbage (*Cynocrambe*); both the latter Greek names, and both given to worthless or poisonous weeds. Dog's-tail is the only good grass to which this name is given. *Cynodon*, a rare grass in England, is as worthless where it occurs frequently, viz. around the Mediterranean, as any of the other species to which this significant term is applied. The term *horse* is in Scotland given to the *Carices* (Sedge-grasses), and it implies generally a strong rough grass, such as grows in wet, ferruginous soils. The grand remedy for such soils is draining and burning, and then the ground which bore only Horse- or Shave-grass, will produce some of the more palatable and nutritious species of this family.

The Atlantis: a Register of Literature and Science. Conducted by Members of the Catholic University of Ireland. London: Longman and Co.

A notice on the outside cover states that "the 'Atlantis' will be regularly forwarded to the editor of any literary or scientific periodical, etc., who will exchange publications." The Editor of the 'Phytologist' will do this *con amore*. He never heard of the Catholic University of Ireland, but he will give a warm reception to the present contribution to literature and science by *its* members.

The leading article is entitled, "The Mission of the Benedictine Order," a notice of which would be beyond our bounds. Our subject is botanical, not antiquarian and historical. Nevertheless, it may be testified here, if such a humble or feeble testimony is worth recording, that the leading article of the 'Atlantis' will repay the reader, if he reads it carefully, for the time and labour spent in its perusal. Even here there is a paragraph which may be instructive to the botanist, but, if not, at least it is suggestive. —"St. Bernard founding his abbey of Clairvaux in a place called the Valley of Wormwood, in the heart of a savage forest, the haunt of robbers; and his thirteen companions grubbing up a homestead, raising a few huts, and living on barley or cockle bread, with boiled beech-leaves for vegetables."

The question suggested to the botanic mind by this relation is, what is cockle? In the Book of Job, the afflicted patriarch writes, If he had ever eaten the fruits of his land without money, or, as St. James says of the rich, that "the hire of the labourers had been kept back by fraud," "may thistles grow instead of wheat, and cockles instead of barley!" What was this grain or seed which our translators of the Bible have rendered cockle? Was it *Nigella sativa*, or *Gith*, whence comes our *Githago*, a plant like *cockle*, or bearing seed like *cockle?* Sprengel, Hist. Rei Herb. i. 14, says that it was the plant mentioned in Isaiah, xxviii. 25, *ketzach*, fitches.

Four sorts of *Nigella* are described by Grenier in his 'Flore de France,' of which *N. arvensis* appears to be the most generally distributed. He does not state that any of the other and rarer species are either cultivated or have been ever cultivated in the south of France. What is the Cockle-plant?—a nut to crack! Will some learned reader of the 'Phytologist,' when he has cracked the nut, give us the kernel for the benefit of our less learned readers?

But there is another question suggested by the quotation from the "Mission of the Benedictine Order:" where was the cockle procured of which the bread was made? Was it cultivated like barley, or did it grow spontaneously, as *Ægilops triticoides* grows in Sicily, and was manufactured, as the indolent Sicilians are said to manufacture their wretched substitute for wheat, by burning the ears, and then, collecting the half-parched grains from the ashes, ground, and baked the meal? Was the cockle which St. Bernard and his companions ate cultivated? Was it eaten *per se*, or was it mixed with the barley and ground up with it, as our millers are said to grind up bones and less harmless materials to increase the amount of their flour? We do not expect historians to answer these critico-scientific queries, but we *do* expect botanists to know something of such matters, and to help us out of these difficulties.

There is, in the same number, an article "On the Formation of Acids by Destructive Distillation," to which we refer such of our readers as are interested in this subject.

The 'Atlantis' contains a learned paper "On the Influence of

Physical causes on the Languages, Mythology, and Early Literature of Mankind." This, though an interesting subject to the Editor, might be caviare to some of the readers of the periodical with which he is concerned, and it is, like the other subjects of this learned Register—we may not call it a Review—*out of our line.* Our readers are merely told that there is good reading in the 'Atlantis,' and this is honestly done on the *crede experto* principle: we have read it, and can safely recommend it.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Botanical Periodicals.

(*From the 'Gardeners' Chronicle.'*)

"We learn with great regret that Sir W. Hooker's 'Journal of Botany' has ceased to appear. Under one form or other our learned friend's scientific correspondence has been given to the public ever since the year 1827, and we fear that the loss of it will be felt too soon. Nor indeed, with the exception of the 'Journal of the Linnæan Society' and 'Taylor's Annals of Natural History,' does there now remain any English medium through which short papers on Systematic Botany can be communicated to the public."

To deliver him (the editor) out of this *mentis gratissimus error*, I take the liberty of advising the Editor or the Publisher of this periodical to send the copy of the 'Phytologist' containing this short note to the editor of the 'Gardeners' Chronicle;' with the following intimation, viz. that there has been a publication issued monthly, at a moderate price, during the last sixteen years, with the exception of about eight or nine months, when it was in abeyance in consequence of the death of its editor; that this publication was established solely for giving publicity to botanical facts, and for the preservation of short papers on structural, physiological, and systematic botany; that 5,640 pages of this work are before the public, and that a complete index to the 1st Series has been prepared, published, and circulated gratis among the subscribers to the present Series, which enumerates among its contributors the most eminent British botanists. And the learned and scientific gentleman should be reminded that he did not read over the last number of the 'Kew Miscellany' very carefully, or he would have seen that the amiable author of that and of many other estimable works was not ashamed to recognize the medium above mentioned, but further condescended to say a kind word in behalf of the 'Phytologist.' Fair Play.

Streatley Chalk.

In the November number of the 'Phytologist' last year (1857), a question was asked, "What kind of Chalk, lower, middle, or upper, crops out on the hills, in Berkshire, above Streatley?" In answering this question, I have the pleasure to refer your correspondent to an excellent little work written by my friend S. R. Pattison, Esq. ,F.G.S., called 'The Earth and the Word,' in which he gives a list of the change of strata at most of the stations on the Great Western Railway between Paddington and St. Austell:—Reading, plastic sands; Pangbourne, Upper Chalk; Goring, Middle Chalk; Wallingford Road, Lower Chalk. He also states that every successive formation, in our downward journey towards the Land's End, crops out from beneath the preceding one. This has no connection with the absolute height of the hills, for we shall find the Granite and Slate much more mountainous than the uppermost Gravels at Hampstead. I need not say how important it is for botanists to be introduced to the sister-science of Geology, so that they may be enabled, when collecting plants, to designate the *soil* or *strata* on which they are found.

S. BEISLY.

FIFESHIRE PLANTS.

(*From a Correspondent.*)

Atropa Belladonna is known to me to grow only in two or three places in Fife; whether or not it is truly a Scotch plant is, I think, doubtful. More frequently than otherwise its stations are found to be not very far from a palace or monastery. The monks may have used it medicinally *or otherwise.* This however is not conclusive, for the berries, having a tempting appearance and no unpleasant taste, have been so often fatal, especially to children, that there is an antipathy against the plant sufficient to account for its extirpation, if it had been ever so abundant. It is mentioned in Sibbald's 'History of Fife' as one of the plants of the country in Charles II.'s reign, "growing in sundry parts of the shire." He gives a *separate* list for the *coast* and islands of the Forth (where the plant now grows), in which it is not mentioned. It therefore must have *then* grown in parts of the county where I have not marked it as seen, but where it perhaps might still be found.

I give you here Sibbald's list, as regards the *Solanaceæ*, in his own words:—

"Solanum bacciferum, 1, sive officinarum." [*S. nigrum.*]
"Solanum bacciferum, 4, sive melanocerasus, C. B." [*Atr. Belladonna.*]
"Solanum bacciferum, 12, id est scandens sive Dulcamara, C. B." [*S. Dulcamara.*]

The last of these is *by no means uncommon* in Fife, though said generally to be rare in Scotland,—following Hooker, I suppose, but he had not been long in Scotland when the 'Flora Scotica' was compiled; I know only *one* station for *S. nigrum*, but several for *Hyoscyamus*, which Sibbald may have thought too common to include in his not very long list (?). The idea that *Belladonna* was the plant mentioned by Buchanan is not new: I have before seen it asserted without any doubt. The *root* of this plant is also somewhere said to be alluded to by Shakespeare in 'Macbeth,' where Banquo says, when the witches vanish from his sight,

"(Or) Have we eaten of the INSANE ROOT
That *takes the reason prisoner?*"

(See 'Macbeth,' act i. scene 3.) H. F. B.

Sir,—In reply to your correspondent S. B., who quotes Hugh Miller's statement that up to the present time we know not that a single herbivorous animal lived amongst the shades of the plants of the Carboniferous system; and moreover that "the thickets of Fern which cover our hill-sides, and seem so temptingly rich and green, remain untouched in stem and leaf from their first appearance in spring until they droop and wither under the frosts of early winter," I have to say that last spring, or in the spring of the previous year (I forget which), I observed that the leaflets of a favourite *Adiantum* (of which I enclose part of a frond) in my green-house were undergoing very rapid consumption. On searching I found, on one of the fronds, and in the active enjoyment of a hearty breakfast, the clearly convicted 'devastator' in the shape of a very plump, bright-green caterpillar, about an inch and a half long. Unless this be an extraordinary instance of preternatural appetency in caterpillars, your readers may spare themselves the trouble of endeavouring to ascertain "what particular property the Fern has to repel the attacks of insects, and why animals do not eat it." M. J. H.

DEVON PLANTS.

(*From a Correspondent.*)

I send a specimen of *Geranium striatum* found near Barnstaple; but I think there is no doubt but that it originally had been the outcast of some garden, although it had established itself in tolerable plenty on the banks of the Yeo, where I found it in 1845. It may perhaps be interesting to you likewise to mention that I found one shrub of *Lonicera Xylosteum* in a hedge at Pill, near Barnstaple, and saw, in 1849, a beautiful specimen of *Physospermum cornubiense* in the possession of a friend who had discovered it in 1839, at Waytown, near Barnstaple: the latter plant, I believe, is supposed to be confined to Cornwall. M. H.

ACCIDENTAL POISONING.

"Her Majesty's ship Wellington sailed from Campbelton with a fair wind on Monday morning last. On the previous Saturday a boat's crew of twelve men, while on shore, dug up a quantity of Hemlock, which they mistook for wild celery or parsley. The men who partook of it, eight in number, became very ill, and two of them, the ship's corporal named Welsh, and a seaman, died suddenly on the same day. The latest information received from the vessel states that four of the others were dangerously ill on Sunday afternoon. The two men who died were buried on Sunday, and their funeral was attended by upwards of 400 of the inhabitants of Campbelton."—*Edinburgh Courant.*

[We would reckon it a great favour if any of our friends or correspondents who are acquainted with the Botany of that part of the country where this lamentable case occurred, would tell us what plant is meant by Hemlock. The men dug it up, consequently it was the root they dug up and ate. Hemlock has no great root. *Cicuta virosa* has a tuberous root, and every part of the herb is very poisonous. The roots of all the genus *Œnanthe* are tuberous, and they are all suspicious or dangerous, *Œ. crocata* virulently poisonous. Hemlock (*Conium*) is a biennial, and at an early period the roots are small, and at a late period they are woody. The roots of *Smyrnium Olusatrum* have been eaten after lying long in a cellar to free them of their acridity. *Apium graveolens* scarcely reaches so far north as Campbeltown. *Œnanthe crocata* appears the most probable supposition, as it has large tubers, which are very virulent, and its geographical range is far greater than the other plants of this genus.]

ORIGIN OF SPECIES.

The subjoined, by Professor Koch, is respectfully submitted to the notice of some botanists who maintain that at most only a pair of plants of each species were originally created.

"Diejenige Ansicht, dass die Natur nur Formen geschaffen, und dass das Auswählen aus diesen bloss in subjectiver Ueberzeugung und Anordnung bestehe, spricht mich so wenig an, als die, dass ursprünglich nur einzelne Arten geschaffen worden, aus denen die übrigen nach und nach hervorgegangen."—*Regensb. Flora*, 1838.

Pyrus Aucuparia is known in this quarter (Buchan) as the Roddin, or Rawn-tree (pronounced as if Rantry). The usual superstitious notions prevail, or did prevail, touching its anti-witchcraft properties. Said also by some to be useful in toothache; but we fear, in common with other so-called remedies, whose name is Legion, it is by no means calculated to deprive that malady of its unenviable reputation as "the deil o' a' diseases." W. S.

MELILOTUS PARVIFLORA.

In this neighbourhood (Timperley, near Manchester) I gathered, last August, *Melilotus parviflora*, growing in some cultivated fields. Shortly after I found the same plant, accompanied by *Melilotus messanensis*, on rubbish-heaps, by the canal-side not far off. Here there can be little doubt that both are aliens. [None whatever.] The Rev. W. M. Hind, Bayswater, tells me that he noticed, last year, *M. parviflora* apparently wild, on the gravel of a country stream, in C. Antrim; and at no great distance, on the banks of the same stream, was growing, as if spontaneously, an American species of *Aster*. I enclose a form of *Veronica*, intermediate, I think, between *polita* and *agrestis*, which I gathered March last, in waste ground at Bowdon, growing plentifully with *Veronica agrestis:* does this variety occur frequently? G. E. H.

[*Note*—These intermediate states are of frequent occurrence, and cast some doubt on the specific distinctness of *V. polita* and *V. agrestis*.]

AGROSTIS SETACEA, LOCALITIES AND RANGE OF.

"This plant is confined to the counties south of London, unless the alleged Yorkshire and Scottish stations, which want confirmation, should prove to be correct. It is the prevailing grass on Southampton Common, as also in many parts of Devonshire and Cornwall. It is also plentiful in the west of France and in Portugal, but in the Isle of Wight it has almost reached its eastern limit, having hitherto been detected in only one spot in Sussex, and abundantly in Surrey, on Bagshot Heath, which is its most northerly well-ascertained limit."—*Bromfield's* '*Flora Vectensis.*'

MOLINIA CŒRULEA.

A large proportion of the grass in Parkhurst Forest consists of this species, which, under the trees in the extensive plantations (principally Fir) in that enclosure, becomes far less rigid, with larger leaves, and with little or none of the usual violet or deep purple of the plant in more open situations. I presume this to be the *Mol.* (*Enodium*) *cæruleum*, var. *atrovirens*, of Dumortier. Like *Catabrosa aquatica*, this plant has been the sport of system, having been a *Melica*, *Aira*, *Festuca*, *Poa*, *Arundo*, from its affinity to all, uniting itself completely with none, and hence properly made a genus apart.—*Bromfield's* '*Flora Vectensis.*'

INTERESTING PLANTS OF PERTHSHIRE.

(From 'Notes on the Flora of Perth,' by W. L. Lindsay, M.D., extracted from Ann. and Mag. Nat. Hist.) *Scheuchzeria palustris*, *Monesis grandiflora*, *Teucrium Chamædrys*, *Turritis glabra*, *Corallorhiza innata*, *Epipactis latifolia*, *Cephalanthera grandiflora*, *C. ensifolia*, *Neottia Nidus-avis*, *Paris quadrifolia*, *Erigeron alpinus*, *Leonurus Cardiaca*, *Scrophularia vernalis*.

SCOTICUS.

In answer to your correspondent "A." (Phyt. vol. ii. p. 384), I beg to say that *Teucrium Chamædrys* grows plentifully on a hillock *in an unworked quarry*, and that I have never found it in more places than *one*, which certainly looks, to say the least of it, *suspicious*. The nearest habitation is within a quarter of a mile. W. FOWLER.

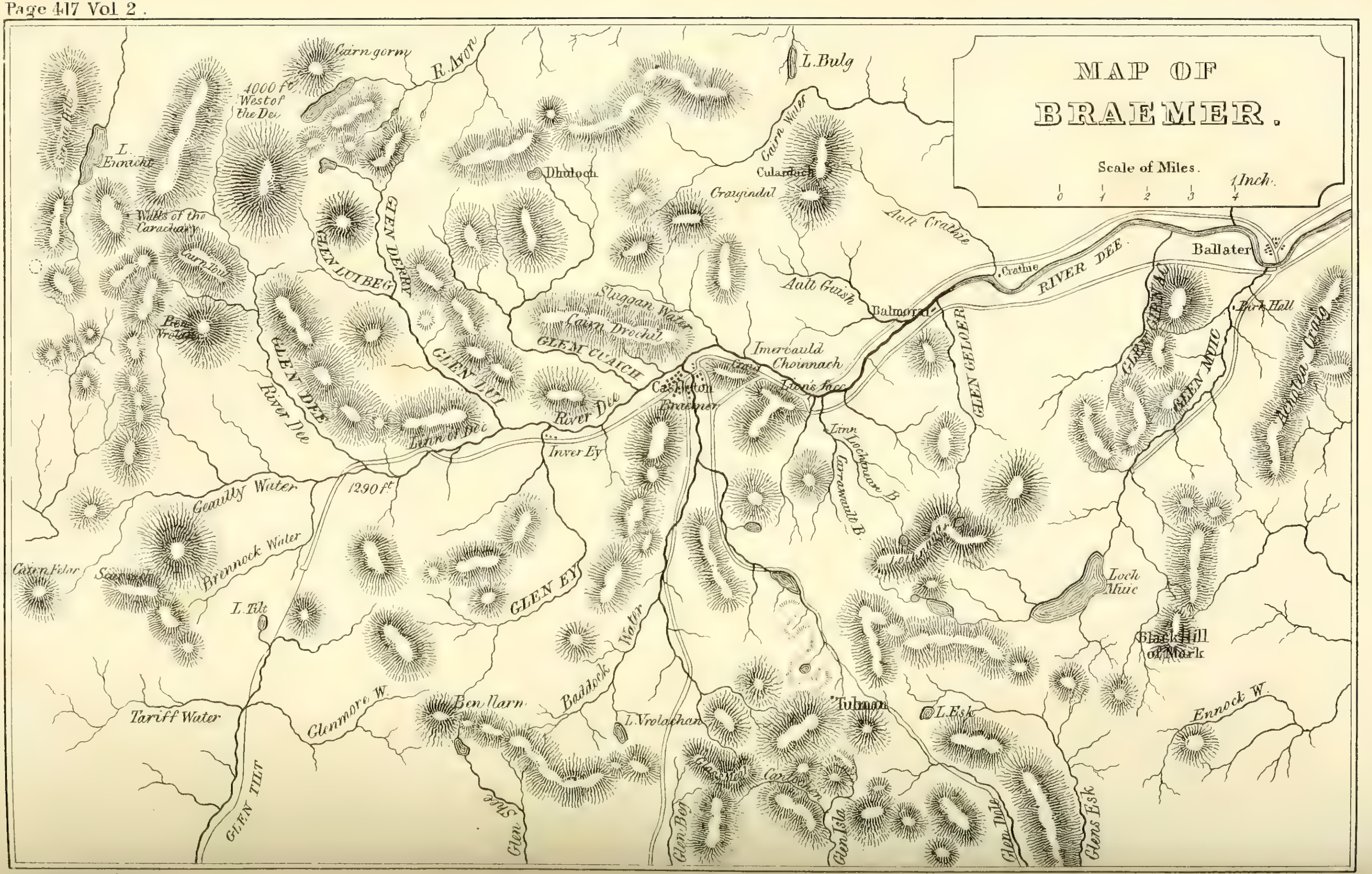
Plants in flower near Eltham and Chiselhurst, on or before March 21, being within ten days after the breaking up of the frost (the first three were well *in flower* on the 14th).—*Ranunculus Ficaria*, *Draba verna*, *Hutchinsia petræa*, *Capsella Bursa-pastoris*, *Stellaria media*, *Ulex europæus*, *Potentilla Fragariastrum*, *Tussilago Farfara*, *Bellis perennis*, *Senecio vulgaris*, *Taraxacum officinale*, *Primula vulgaris*, *Veronica agrestis*, *V. Buxbaumii ?*, *Lamium album*, *L. purpureum*, *Mercurialis perennis*, *Corylus Avellana*, *Ulmus campestris ?*, *Poa annua*.

Communications have been received from

W. F. Buist; Sidney Beisly; J. Jones; M. J. H.; S. B.; B. C.; J. G. Baker; A. G. More, F.L.S.; Rev. R. H. Webb; M. H.; Benj. Carrington, M.D.; John Barton; William Fowler; Charles C. Babington, F.R.S.; William Sutherland, A.M.; A.

BOOKS RECEIVED FOR REVIEW.

The Californian Farmer's Journal: No. 2.


MAP OF
BRAEMER.
Scale of Miles.
0
1
2
3
4
1 Inch.
L. Bulg
Cairn gorm
R. Avon
4000 ft West of the Dee
L. Ennicht
Wells of the Caracharry
Cairn Toul
Ben Vrotie
Dhuloch
Culardoch
Craigindal
Cairn Water
Ault Crathie
Crathie
RIVER DEE
Ballater
Birk Hall
Ault Guish
Balmoral
GLEN GELDER
GLEN GIRNAL
GLEN MUIC
Sluggan Water
Cairn Drochil
GLEN CUAICH
Imercauld
Choinnach
Craig
Lion's face
Castleton
Braemer
River Dee
Linn of Dee
GLEN LUI
GLEN DERRY
GLEN LUIBEG
GLEN DEE
River Dee
Inver Ey
1290 ft
Geaully Water
Brennock Water
Cairn Felar
Scarsoch
L. Tilt
GLEN EY
Baddock Water
L. Vrolachan
Ben Ilarn
Glenmore W.
Tariff Water
GLEN TILT
Glen Shee
Glen Beg
Glas Meal
Carlochen
Glen Isla
Tulman
L. Esk
Glen Dole
Glens Esk
Linn
Lochnean B.
Carrawault B.
Lochnagar
Loch Muic
Black Hill of Mark
Ennock W.

W. Pamplin imp.

J. Barton del.

NOTES ON THE FLORA OF BRAEMAR, ABERDEENSHIRE.

By JOHN BARTON.

(*With a Map.*)

1. *Cairntoul.*—Leaving Castleton by the road which leads up the valley to the Linn of Dee, we arrive, after a walk of some nine miles, at the confluence of the two burns which combine to form the Dee,—the first, called the Geaully burn, taking its rise in the mountains of Cairn Eelar and Scarsach, and the other, which is the Dee proper, joining it from the north. Our route lies up the valley of the latter, and, after proceeding along it three or four miles, we find ourselves confronted by a dark wall of precipitous rock, abutting far out into the valley, and forming the salient angle between Glen Dee and Glen Giusachan. This enormous natural buttress is known by the name of Bod-an-diaoul, and is a projecting shoulder of Cairntoul. Leaving it on our left, and proceeding up the valley, we are greeted by the twin giants, Ben-na-muic-dhui and Braeriach, towering up one on either side of the valley a few miles in front of us, while high up on our left a thin white streak of foam marks the course of a stream down the eastern precipice of Bod-an-diaoul, evidently forming the outlet of some mountain tarn high up in the mountain fastnesses. This is the stream of the Garachary, and it is a matter of some dispute amongst the local authorities whether it does not more truly claim to be the actual source of the Dee, than the other stream which has its sources some three miles higher up, in those singular springs called the "Wells of Dee." However this may be, the sources of the Garachary are well worth a visit for the sake of the botanical rarities to be found there. High up on the precipices which form the eastern and northern face of Cairntoul grow the rare *Cerastium trigynum* (*Stellaria cerastoides,* L.), *C. latifolium, Saxifraga rivularis, Carex leporina, C. saxatilis,* and many rare *Hieracia,* of which Mr. Backhouse could give a much better account than I can. Indeed, as I have already remarked, it bids fair to be the richest botanical district in the Grampians. The scenery of Glen Dee is very grand, from the extreme narrowness of the valley, and the stupendous height of the towering masses on either side of it. The distance between the summits of Ben-na-muic-dhui and

Braeriach is little more than two miles, and yet there is a yawning chasm between them 2000 feet in depth. The height of the Wells of Dee is computed at 4000 feet, and before the stream which issues from them has proceeded half a mile it has leapt down at least 1800 feet; yet the fall during the next twenty miles of its course, from its junction with the Garachary to Castleton, is only 570 feet;—thus illustrating in a remarkable manner the peculiar character of all the valleys in the Grampians,—comparatively level through by far the greater part of their course, and then terminating abruptly in an almost perpendicular precipice.

2. *Corry of the Dhuloch, Ben-na-buird.*—About five miles to the east of Ben-na-muic-dhui, and connected with it by a succession of granitic ridges, rises the noble mountain of Ben-na-buird. It consists of two ridges of nearly equal elevation, separated by a valley of some depth; and on its eastern side, embosomed in rugged precipices, lies a small round lake, called, like many other similar ones in the Grampians, the Dhuloch, from the dark-blue colour of its still waters. Here, in the crevices of the massive rock, grow many of the rarities that we have found on Cairntoul, as *Saxifraga rivularis* and *Cerastium trigynum,* also *C. alpinum, Veronica alpina, Phleum commutatum,* and several others, but they have to be well searched for, being much more sparingly distributed here than in some of the other localities. The corry of the Dhuloch is best approached from Castleton by way of the Sluggan;—the keeper's cottage, which stands at the head of this latter valley, looks right upon the south-east shoulder of Ben-na-buird, and the corry lies close behind the curious rocky prominence called "Cioch," or "the breast,"—of a somewhat similar character to the huge natural cairns which crown the summit-ridge of Ben Avon, and form such conspicuous objects in every distant view of the range.

3. *Little Craig-an-dal.*—This mountain, if it is worthy of being so designated, is remarkable solely in a botanical point of view, there being nothing in its outline or geological character to distinguish it from the other mountains round. It was first rendered famous by the discovery of *Astragalus alpinus* upon it by Messrs. Babington and Balfour, some twenty years ago, for the second time in Great Britain;—and has since been found to produce several other rare species, especially *Carex rupestris* and

Dryas octopetala, which were previously thought to be restricted to the Clova range. The principal matter of surprise is, what can render this particular mountain slope so especially attractive to the delicate alpine plants. As Macgillivray justly observes,—"One cannot guess the reason of their preferring this spot, the hill being of little elevation (probably not more than 2000 feet), and not obviously different from those near it, which are of quartzose mica-slate. Ben-na-buird and Ben Avon are of coarse red granite, part of the greater Craig-an-dal seems to be of porphyry, and the hill of which the lesser Craig-an-dal is the extremity, is of laminated micaceous quartz and mica-slate. *Astragalus alpinus* is not known to occur on *any* of the granitic mountains; in its other recorded station, Glen Dole, the rock is slaty." This choice alpine rarity, as well as most of the other valuable plants that grow there, confine themselves exclusively to the western slope of the mountain; the former is so abundant that it forms quite a dense turf over a space about 300 yards long by 100 broad (this is no exaggeration, for I took the pains to pace it out carefully), and therefore, although the deer seem to have some partiality for it, and crop the flowers very close in some places, there is little danger of its being ever eradicated by insatiable botanists. *Dryas octopetala*, *Tofieldia palustris*, *Thalictrum alpinum*, *Saussurea alpina*, and many other choice species, grow plentifully along the little watercourses that trickle down the mountain-side, while the lovely *Saxifraga oppositifolia* and *Silene acaulis* cover in many places with a rich mantle of purple and crimson whole square-yards of the bright greensward. The spot is within an easy two hours' walk of Castleton; but the exact place is difficult to find without a guide, from the absence of any distinct features to serve as guide-marks.

4. *Corry of Loch Ceander*.—About two miles above Castleton, Glen Cluny forks into two branches,—the one to the right being Glen Cluny proper, and continuing its course towards Glass Meal;—the other, which is called Glen Callater, making a sharp turn to the left at the farmhouse of Achallater, brings us, in the course of three miles further, to the foot of Loch Callater, a small lake about a mile long and a third of a mile in breadth. Here the carriage-road ceases, but a footpath winding along the east shore of the lake leads up for three miles further into the glen, till a deep recess appears opening upon us on the right, shut i

by dark precipices, and apparently containing within its bosom one of the small deep lochs so frequent in the Grampians, out of which a small stream issues to feed the Callater burn. This is the corry of Loch Ceander, and a strangely wild spot it is,—the lake is so completely shut in on all sides that there is not a glimpse of it to be obtained till we approach within twenty yards of its margin, while the solemn stillness of the whole scene is indescribable. The "bold Sir Bedivere" tells King Arthur, on his return from his mission,

> "I heard the ripple washing in the reeds,
> And the wild water lapping on the crag;"—

and such are the only sounds that meet the ear of the solitary traveller as he stands on the margin of Loch Ceander.

For the benefit of the geological readers of this journal I will here quote Macgillivray's description of the spot. "The rocks in the corry of Loch Ceander are various. The mountain, in which it is excavated, is mostly composed of micaceous slaty quartz, minutely granular, but laminated, and of a greyish or bluish-white colour, with dark bluish-grey laminæ, and sometimes with hornblende and actinolite interspersed. The precipices, on the southern side, immediately above the lake, are of minutely laminar, undulated, and contorted quartzose mica-slate; more eastward, on the same or south side, is a ridge of hornblende rock, which descends from the brink of the corry, and is composed of irregularly-aggregated imperfect crystals of dark greenish-grey hornblende, intermixed with granular felspar, and resembling a trap-rock in appearance and in being unlaminated.* It is, however, continuous with stratified and laminated hornblende slate, which forms the face of the promontory, on which is the conspicuous and somewhat celebrated 'break-neck waterfall.' The brook, forming this little cascade, comes tumbling down the rocks, and has ploughed a large groove in the detritus at their base."

Besides *Carex rupestris*, the corry of Loch Ceander produces the very rare *Salix lanata*, also *Erigeron alpinus*, *Cerastium*

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* I believe this to be the rock which Mr. Backhouse has wrongly described as serpentine, on which *Carex rupestris* is so abundant. (*Vide* Phyt. o.s. iii. 769.) I searched very carefully for traces of serpentine, but never found anything like it, nor is it marked in Professor Nicol's Geological Map of the district. Serpentine does occur at the summit of some hills in Glen Javar, but nowhere else in the Braemar district that I am aware of.

latifolium, and a host of other choice plants. Mr. Backhouse, on his visit in 1850, seems to have found it unusually rich in *Carices* (iii. 769, o.s.).

5. *Lochnagar.*—(The greater part of the following description is taken from Macgillivray.) The summit of Lochnagar is three miles or more in length, and presents towards its eastern extremity the great corry, 1200 feet deep, with precipices varying from 200 to 500 feet in height, and a slope of detritus at their base, slanting down very abruptly to an irregularly-oval lake. This lake has given its name to the whole mountain, Lochan-a-ghār, the precipices around it being called Creacan-lochan-a-ghār. The etymology of Lochan-a-ghār is difficult; it has been conjectured to mean the "little lake of the dyke" or wall, as being a shortened form of Lochan-a-ghāridh, the dyke being the great precipice. Perhaps, however, the true name is Lochan-a-ceār, the "little lake of the hares," of which there are many on the mountain, just as the lake in the western corry is named Lochan-eun—the "little lake of birds"—it having been formerly frequented by gulls (*Larus ridibundus*). The mountain itself, as has been already observed, is one of the most magnificent in all the Braemar district. Its highest point is 3789 feet above the sea-level (as given by the Ordnance Survey), and, occupying as it does a very central position in the midst of its numerous dependencies, it forms a connecting nucleus to all the ranges of hills that occupy the space between Glen Callater and Glen Muic. It is composed entirely of granite, as are the other masses in its vicinity; but in one part of the ridge of hills that runs down from it to the Lion's Face, and the other rocks opposite Invercauld, there is an intermixture of mica-slate, sometimes having the appearance of gneiss, and sometimes of quartz-rock. The granite mountains to the north of the Dee are but scantily covered with vegetation, owing to the disintegration of the rock, which has covered them with loose stones and gravel. Lochnagar, however, and especially the mountains surrounding it, being of harder rock,* have a considerable covering of peat, and a more luxuriant vegetation. The alpine plants of this summit are dis-

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* The crystals of felspar and quartz occurring in the granite of Lochnagar are quite small, and the rock is very close-grained; whereas on Ben-na-buird I have picked up fragments of granite containing crystals from three-quarters to an inch in diameter.

posed much in the same way as those of Ben-na-buird or Ben-na-muic-dhui. On the bare summit are *Juncus trifidus*, *Luzula spicata*, *Carex rigida*, *Salix herbacea*, and *Sibbaldia procumbens*.* In the northern, or, more correctly, the north-western corry, that of Lochan-eun, the craggy rocks and precipices, from 3200 down to 2900 feet, produce all the plants mentioned above, together with many others, and especially *Gnaphalium supinum*, *Veronica alpina*, *Saxifraga rivularis*, and in various places *Carex leporina* and *Phleum commutatum*. These plants, with the exception of *Carex leporina*, which occupies nearly a horizontal belt, observe no particular order as to altitudinal arrangement, and beyond the small lakes in the hollow below, which are at the heights of from 2800 to 2050 feet, the vegetation ceases to be alpine. On the east side of the mountain the precipices descend from 3700 to 2500 feet, and in their ravines or fissures, which are nearly perpendicular, with transverse rents giving to the rock the appearance of being stratified, are found *Cerastium alpinum*, *Sibbaldia procumbens*, *Veronica alpina*, *Saxifraga rivularis*, *Poa minor*, *P. laxa*, etc. About halfway down the precipices *Mulgedium alpinum* occurs, but very sparingly. Below this, on the shelves or crags, the vegetation is more luxuriant than elsewhere, in some parts indeed quite rank, and consists of a multitude of species belonging to the lower regions, intermixed with alpine plants. Among the latter are *Hieracium alpinum*, *H. nigrescens*, *Salix Myrsinites*, *S. arenaria*, and, at the very foot of the rocks, a profusion of *Cryptogramma crispa*, a Fern by no means common on the Braemar mountains. Descending from the summit in a southerly direction, towards the Dhuloch, about two miles distant, we find many of the plants already mentioned, and some others besides. Near the lake is abundance of *Cornus suecica*, and the crags above it yield many of the plants found on Lochnagar, as well as *Thalictrum alpinus*, *Erigeron alpinus*, *Sibbaldia procumbens*, and several more. Lochnagar is perhaps most easily ascended from Castletown by following the course of the Garrawault burn through the forest of Bealloch-bhui, till the path emerges on the open moor, when the peak of Lochnagar appears rising up about three miles distant. The forest of

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* It is interesting to compare with this Mr. Watson's lists of the plants of the summits of Ben-na-muic-dhui and Ben-na-buird, as given in the introductory remarks prefixed to the first volume of the 'Cybele Britannica.'

Bealloch-bhui is in itself well worth a visit, as exhibiting the *Pinus sylvestris* in its natural state as well as, or better than, any other forest in Aberdeenshire.

Before taking our final leave of the mountains and valleys of Braemar, it may be interesting to note a few of its characteristic animals, which exhibit a striking contrast to those of our own country. The wilder and more savage species are fast disappearing, as the wild cat (*Felis catus*) and the black rat (*Mus rattus*), in reference to which latter animal the same remarkable change is going on which was effected some years ago in our own country. The brown or Norway rat (*Mus decumanus*), which has only been introduced within the last century, is rapidly expelling its less powerful neighbour, and bids fair to exterminate it altogether before long, as it has done in England.

In the same way the alpine hare (*Lepus variabilis*) is apparently driving out the smaller species (*Lepus timidus*). The most characteristic quadruped, however, in Braemar, on all accounts, is the red deer (*Cervus elaphus*), of which there are said to be 10,000 in the district. As many as 300 are killed annually in Braemar alone. The birds most frequently met with on the loftier mountains are the snow bunting, brown and grey ptarmigan, ring ousel, dotterel, and curlew. Macgillivray has observed as many as 100 different species in the Dee valley, which seems a very fair proportion out of the 340 species at present known in Great Britain.

MOSSES GROWING NEAR SETTLE.

By John Windsor, M.D.

The following list of the Mosses found near Settle, is, I am aware, very imperfect, but as far as it goes, I trust, correct. Mr. Wilson, of Warrington, some time since, kindly looked over the specimens I had preserved.—

Andreæa rupestis. Ingleborough.

Andreæa Rothii. Stones on the ascent to Ingleborough, namely on the little hill, plentifully, March 25, 1805.

Phascum axillare. Near Settle.

Sphagnum. Different species of this genus found on the Mosses near Settle.

Gymnostomum rupestre (*cuvirostrum*). On an old wall near the lead-mines, on Malham Moor.

Physcomitrium polyphyllum (*Dicranum polyphyllum*, or *Trichostomum polyphyllum*). Wall on lane-side leading to Cleatop Parks; and also on a wall on the lane-side leading to Higher Ridge, near Settle.

Splachnum mnioides. Side of Ingleborough, near Foalfoot.

Weissia verticillata. In the wood near Langcliffe Place. On the banks of the Ribble.

Grimmia apocarpa. Wall in Settle brows or pastures. Above Settle, on the old Long-Preston road.

Grimmia pulvinata. Common on walls about Settle.

Didymodon purpureus. Rocks on the south end of the top of Penyghent.

Racomitrium lanuginosum (*Trichostomum lanuginosum*). On the north side of Penyghent. Covers the top of Ingleborough, March 25, 1805. Wall on the lane-side between Brockholes and Lodge, near Settle.

Racomitrium aciculare (*Dicranum* or *Trichostomum aciculare*). Small gill beyond Lodge. North side of Penyghent, on boggy stones, over the wall.

Racomitrium fasciculare (*Trichostomum fasciculare*). Stones on the ascent to Ingleborough (little hill), March 25, 1805.

Racomitrium polyphyllum (*Trichostomum polyphyllum*). See *Physcomitrium polyphyllum.*

Dicranum heteromallum. Edge of a low quarry on Quicksite Green, a little above Settle, on the old Long-Preston road. Edge of a small pond, at the corner of a wall, on some waste ground between Giggleswick and the old site of Giggleswick Tarn.

Tortula muralis. Walls and crags near Settle.

Tortula ruralis. About Settle and Giggleswick, etc., plentifully.

Tortula subulata. Wall in High-hill Lane.

Tortula unguiculata. About Giggleswick and Settle.

Tortula fallax. Near Settle.

Cinclidotus fontinaloides. Stones by Ribble side, below Settle Bridge.

Polytrichum undulatum. Quarry in Quicksite Green, above Settle.

Polytrichum piliferum. Lower quarry in Quicksite Green.

Polytrichum juniperinum. Hills between Settle and Malham Tarn.

Polytrichum juniperinum, var. *β. alpestre.* Near Ingleborough.

Polytrichum alpinum? Near Settle.

Polytrichum commune. Near Settle.

Polytrichum urnigerum. In some old quarries, in waste ground, between Catteral Hall and the old site of Giggleswick Tarn.

Polytrichum aloides, var. *capsula breviore.* Lane between Upper Settle and Lodge.

Funaria hygrometrica. A few places about Settle, as at Quicksite Green, about Cowside, etc.

Funaria Muhlenbergia. On the rocks called Awe's Scar, above Malham Tarn.

Orthotrichum cupulatum. On a wall on the north-east edge of the old site of Giggleswick Tarn.

Orthotrichum cupulatum, var. *capsula emersa.* A very anomalous state of *O. cupulatum,* with exserted capsules, and the peristome often furnished with *cilia;* usually found on stones in or near rivulets (*e. g.* at Malham). N.B.—Even the true *O. anomalum* has sometimes *cilia,* but it is a different species from this.—Mr. W. Wilson, of Warrington.

Orthotrichum anomalum. Wall on the north-east edge of the old site of Giggleswick Tarn.

Bryum nutans. Rathmell turf Moss.

Bryum Zierii. Near Settle?

Bryum ventricosum. Near Settle. Side of a rivulet, a mile above Thornton Force, near Ingleton (*inflorescence diœcious*).

Bryum capillare. On the stones in the Gill, near Lunun, not far from Settle, etc.

Bryum cernuum. Near the old site of Giggleswick Tarn, along with *Polytrichum urnigerum* (*inflorescence diœcious*).

Bartramia pomiformis. Right-hand side of the road between Arnforth and Swindon.

Bartramia ithyphylla. Clefts of rocks north of Foalfoot, Ingleborough.

Bartramia fontana. Near Settle.

Bartramia Halleriana. Near Settle.

Bartramia calcarea. Near Settle.

Neckera crispa. Woods about Settle.

Hypnum riparium. On the banks of the Ribble, near Settle.

Hypnum populeum. Stones by the Ribble-side, below Little Bridge; and on trees below the Bridge, by Mill Island.

Hypnum murale. Stones on the Ribble-side, nearly opposite Settle; old cornmill.

Hypnum sericeum. Wall near Langcliffe Hall, plentifully. Wall below Kelcowe. On the left-hand side of the road opposite Catteral Hall, etc.

Hypnum dendroides. Near Settle.

Hypnum curvatum, or *myosuroides.* Frequent; as at Cleatop Parks, etc., near Settle.

Hypnum splendens. Crags (Peart's) above Settle.

Hypnum proliferum. Neighbourhood of Settle.

Hypnum rutabulum. Common; as at Peart's Crags, Mill Island, stones betwixt Lunun and Little Bank.

Hypnum velutinum. On an old round wall near the lead-mines, on Malham Moor.

Hypnum ruscifolium. Near Settle.

Hypnum cuspidatum. Near the old site of Giggleswick Tarn.

Hypnum loreum. Cleatop Parks.

Hypnum triquetrum. In the wood near Langcliffe Place. Between Happa and Slack.

Hypnum squarrosum. Very common; as on lane-side, near Lodge, etc., *passim.*

Hypnum palustre. Stones in the rivulet below Malham Cove.

Hypnum uncinatum. Highhill Lane, near Settle.

Hypnum cupressiforme, var. On an old wall opposite Catteral Hall.

Hypnum molluscum. Near Settle.

Cinclidium stygium. Of this Moss I have been favoured with specimens from that excellent muscologist Mr. John Nowell, of Todmorden, who first, I believe, discovered it on Malham Moor, in 1836.

BOTANY OF LOCH KINORD, ABERDEENSHIRE.

By W. Sutherland, M.A.

In the interior of our shire, making, as it were, the line of demarcation between the rich corn-lands that stretch almost uninterruptedly over innumerable hills and dales, which in the autumnal sun gleam as one continuous sheet of burnished gold, ripe for the sickle of the frugal husbandman, eastwards to the very margin of the rippling ocean, and the huge granitic mountain-masses that lie tumbled in wild confusion as far as the eye can penetrate the western horizon, lies a placid loch known by the name of Kinord. By what we conceive to be a most happy improvement in the route usually pursued by the tourist in visiting the Aberdeenshire Highlands, he cannot fail to see this now little-frequented sheet of water, lying somewhat to the north of the highway, and he will be at once struck with the wonderful effect it has in enhancing the charms of the landscape that here spreads itself before him. But for one anxious to make the most of his tour,—especially if it be a botanical one,—and who is at the same time adopting the only means of thoroughly enjoying it, namely, performing it "afoot," as a late sprightly writer in 'Maga' hath it, it will be advisable to cultivate a more intimate acquaintance with Loch Kinord than the merely distant prospect of it can afford us. We are now at its margin, strolling amid the fragrant and lachrymose Birches that encircle its placid bosom with a girdle of Nature's most perfect workmanship. A feeling of calm and pleasurable content begins to creep over us as we cull and contemplate the tiny flowerets that bloom, perhaps until now unheeded, beneath our bounding footsteps, and which have as yet ceased not to "waste their fragrance on the desert air," until the present humble worshipper at Nature's shrine felt, as the odour expressed from banks of lowly Thyme was wafted upwards on the breeze, a deeper significance in that aroma than the mere senses wot of. But why is it that at once we almost feel as trespassers in these so little-disturbed glades, as yonder graceful roe bounds, startled at our noisy and unwelcome approach, from the mantling cover of the Brakes, where her mid-day siesta has been passed? Ay, why? Are not these creatures, in their way, purer and happier than fallen man, inhabitants more meet for retreats such as this, though

"Man, His last work, who seemed so fair,
Such splendid purpose in his eyes,
Who rolled the psalm to wintry skies,
Who built him fanes of fruitless prayer,"

has changed the very aspect of nature, and raised as the proud monuments of his genius and his greatness so many noble cities wherein men most do congregate? Why, in such moments of free intercourse with nature, is he, alas! so often compelled to acknowledge that he alone is vile? Echo, reverberating from the hoary sides of the river, by "Morven of snow," but consoles the listener with the bodeful reply, "Ah, why?" We feel that it is so, and spring, as our only resource, into the boat that here opportunely floats beside us, and bid adieu to contemplation as we merrily skip across the lake, now ruthlessly ploughing our way through forests of tall and graceful Bulrushes, or anon, in some more sheltered cove, dealing more tenderly with the dark floating leaves and gorgeous flowers of the yellow and the white Waterlilies that here and there form no inconsiderable islands of gems, that each

> "Rise like a nymph to the bath addrest,
> Which unveiled the depth of her glowing breast,
> Till, fold after fold, to the fainting air,
> The soul of her beauty and love lay bare."

But to be less poetical, "as certain writers say, when they have been writing nonsense," let us now give a short account of such botanical rarities, both aquatic and terrestrial, as this loch affords. We have already remarked that the Waterlilies are here in abundance—all the three species, in fact, *Nymphæa alba, Nuphar lutea, N. pumila;* the last, being the rarest, will of course be most sought after, and here at least there is ample scope for carrying off a splendid set of duplicates. The plants, however, which we gathered before embarking, ought to have been mentioned. The principal of these are *Betula alba,* already described as surrounding the loch, while under its shade we find *Melampyrum pratense,* var. *montanum.* In the woods near by also grow these northern favourites: *Trientalis europæa, Listera cordata, Trollius europæus,* and, somewhat later in the season, whole fields, as indeed is the case over woods in the greater part of the shire, of *Goodyera repens.* The district of Cromar, in which we now are, can also boast of several stations for the far-famed *Linnæa borealis,* chiefly in fir-woods, but in one instance it altogether dispenses with the "sub tegmine fagi" (*i.e. pini*) style, and disports its little blossoms on the open mountain-side; this station is on the eastern aspect of Morven, about halfway up that song-renowned mountain. In the boggy and heathy ground that lies in its vicinity grow *Potentilla Comarum* (Nestl.), *Menyanthes trifoliata, Myrica Gale,* and *Briza media,* with many other plants, which from their frequency with us we are apt to overlook, though the botanist from the South might not pass them by without more particular notice.

As to the loch itself, we may remark that it appears to be the last trace of a sheet of water which some time in the Tertiary period covered the whole of the large, prosperous, and highly cultivated district of Cromar (including five or six parishes in itself), which, surrounded on all sides, save to the south, by hills, lies at right angles to the narrow valley of the Dee, which itself runs from east to west. Its southern boundary is the Muir of Dinnat, a very bleak and lonely heath (we trow as bad as that "near Forres"), through which the old turnpike used to "drag its slow length along," and remarkable for nothing save its dreariness and the great number of tumuli that bestud its surface, marking the last resting-place of many a brave Scot, and (so Buchanan hath it) of many more of the warlike Danes that descended on our land in the days gone by. In the shallower parts of the water, a little patience will enable the collector to secure plenty of *Utricularia vulgaris, U. intermedia,* and *U. minor.* There is a small and a smaller (so to speak) island, the latter being thickly beset with *Calamagrostis Epigejos,* while the other presents nothing of importance, botanically speaking, though interesting in another way, as exhibiting indubitable traces of old buildings which tradition elevates (and we believe it) into the rank of a castle, which was often selected as the summer residence of our good old Scottish kings in the brave days of old. But however this may be, they have passed from thence, and the wild and warlike songs of their bards have given place to the more peaceful sighing of the breeze through almost interminable ranks of reeds—*Arundo Phragmites.* Floating on the surface of the water, stranded on the shores, or, still better, *in situ,* at the western end of the loch, we may find plenty good specimens of *Callitriche autumnalis.* *Lobelia Dortmanna* is really a beautiful plant if seen under favourable circumstances, as here, and we would not accept in exchange the sunniest and most brilliant of flower-plots for its nodding colonies of meek-eyed flowers, bending in perfect harmony with every ripple of the sparkling wave.

Carex filiformis is the most interesting member of the *Cyperaceæ* which takes up its home here, while *Isoetes lacustris* will be a welcome acquisition to the fern-hunter. With some interesting species of *Potamogeton,* as *graminea, perfoliata, lanceolata, natans,* etc., the list of flowering-plants of interest appears to be complete, unless my memory and notes have played me false.

NAMES OF PLANTS.

(*From a Correspondent.*)

Sir,—In 'Phytologist' for Feb. 1858, p. 359, under 'Derivation of Botanical Names,' "F. C." very kindly observes, that the correspondents who ask for the derivation of botanical names, *Berberis* for example, "are probably not aware that 'Paxton's Botanical Dictionary' (in most cases) will afford an answer to such inquiries," etc. I am one of the correspondents who have given some trouble to the Editor of the 'Phytologist,' but I am not *unaware* of the publication recommended, nor of the existence of a better medium than the 'Botanical Dictionary' for the resolution of these difficulties. Although I readily admit my having propounded queries on nomenclature, I submit that I have never cumbered the pages of the 'Phytologist' with any question on botanical etymology till I had exhausted every available resource. From my experience of 'Paxton's Botanical Dictionary,' I am disinclined to adopt F. C's. favourable view of its linguistic capabilities. Such things might be expected in botanical glossaries or dictionaries, but from Bradley's times to the present, when botanists are favoured with explanatory works from the very *élite* of botanical writers, Henslow, Lindley, and Paxton, nothing seems to have been further from the aim of these distinguished writers than this subject, the etymology of botanical names or terms, or scientific phrases. These eminent authors had other views, which they have abundantly realized, and it would be unfair to expect in their scientific pages another series of grammatical or etymological facts which they do not profess to communicate.

As a general rule, 'Paxton's Dictionary' does give the derivation of the generic names. But as there are exceptions to all general rules, if we may believe the proverb, the dictionary in question is no exceptional example, but a corroborative proof of the general truth of the old saw. The newly-devised generic names we should not expect to find there, either in the body of the work or in the appendix; but besides the very recently added names, there are many others, among which the following occur:—*Arnoseris, Athyrium, Blysmus, Ceterach, Cicendia, Honkenya, Lastrea, Lentibulaceæ* (an ordinal name), *Lepigonum, Lepturus, Monesis, Mulgedium, Obione, Oporinia, Simethis,* etc. But even granting that the generic and ordinal names are explained, most of the *non gnari botanices* want to know something of the derivation and history of specific and trivial names, and especially of such as were once generic names, such as *Dryopteris, Phegopteris, Otites, Odontites, Psyllium, Lunaria, Trichomanes,* etc. Gentlemen who have well-furnished bookshelves, may recommend the inquirers into such matters to turn over the pages of their quarto 'Ainsworth,' or to look into 'Du Cange,' or 'De Fresne,' or 'Stephens,' or the ponderous and expensive Lexicons and Encyclopædias of more recent times. But there are many readers of, ay, and writers in, the 'Phytologist,' whose botanical library or works of reference are limited to the 'Manual of British Botany,' or Hooker and Arnott's 'British Flora,' with perhaps a 'Bailey's Dictionary.' Such should have the privilege of stating their wants in the pages of the 'Phytologist,' even though the information sought might be obtainable in 'Paxton's Dictionary.' ZETA.

BUCKBEAN.

A correspondent asks (Phyt. ii. 191), "What is the meaning and derivation of Buckbean?" The name is discarded by Miller, who prefers Bogbean; but our correspondent believes Buckbean to be correct. The derivation of the word or term Buckwheat will help us in answering this query. Buckwheat is a synonym of *Fagopyrus;* and *Fagopyrus,* literally rendered, is Beechwheat, from φηγος *beech,* πυρος *wheat.* It would be difficult now to say what was exactly the reason of calling the plant now known as *Polygonum Fagopyrum,* or *Fagopyrum esculentum,* by this name. But as wheat is eaten, and as *F. esculentum* means, what may be eaten, so far there is a resemblance, at least in the final cause; "There is a river in Wales," etc. As *Fagus* and *Fagopyrum* (Beech) are derived from the verb *φαγω, I eat,* the reason of the derivation is not very obscure. Now for the English prefix, *buck.* Beech in German is *buche,* and *buche* is easily corrupted into *buck,* and hence we have Buckwheat as a corruption of Beechwheat. It may here be admitted that to many people of good understanding, Buckwheat is just as rational a term as Beechwheat. This is true; but etymologists have to judge on etymological and logical principles, and as the word *beech* can be traced from *φαγω, I eat,* and as *buche* is easily corrupted into *buck,* so also the German word *bach,* brook, is as readily corrupted into *buck.* *Bachbunge* in German is the name of another brook-plant, viz. *Veronica Beccabunga,* our *Brooklime.* Again, we have the term *Buckbean* more directly from the Danish *Bukkeblade.* *Bukke* is buck in that language, and brook is *bœk* in Danish, and *bäk* in Swedish, and *beck* in Old English: *beck,* a little river or brook, is still a current word in the Craven district of Yorkshire. The transition from the German *bach,* the Danish *bœk,* or the Swedish *bäk,* to the English prefix *buck,* is obvious enough. Bean, or *bönne,* Danish, or *böna,* Swedish, indicate the shape of the mature capsules, which are not much unlike a bean, and there is also a resemblance in the foliage. The term Bogbean is also a corruption from the Danish. It is not so called because it grows in bogs, but because *g* and *k* are convertible letters in the science of etymology. For example, *Högsurt* in Danish is Hawkweed in English; and the term Bogbean is probably only an ancient corruption of Buckbean, *more Danico.* There exist more than traces of the influence the Danish language has had on the vernacular of almost all parts of the British Islands.

ETYMOLOGUS.

ON BLECHNUM SPICANT.

To the Editor of the 'Phytologist.'

Sir,—Your correspondent who tells us (p. 220, vol. ii.) that *Spicant* is a *lapsus calami* or a printer's blunder for *spicans,* assumes more than can be proved, or more than some of your learned readers may be willing to concede, viz. that it would be absurd to suppose that the great Linnæus formed it from *spico*

-as -at -amus -atis -ant. This may be true. He subsequently adds, "Is it not therefore much more probable, nay, even certain, that he wrote it *spicans* (from the participle of the present tense, used as an adjective), and that the '*s*' was written, as it very frequently is nowadays, like a '*t*,' carelessly, and the error thus propagated?" The great Linnæus has received the credit, and, it may be added, the homage of posterity, for some things which he did not do, for changes which he did not make. Like many reformers, who leave some things as they are because the people are used to them, Linnæus retained much in his nomenclature which he merely found ready to his hand. It may safely be asserted that this name, *Spicant,* is one of these, not one of Linnæus's making. It may further be affirmed, that as several editions of the 'Species Plantarum' were published during the life of the author, it is surely quite as absurd that the great linguist and botanist never corrected this blunder, but allowed it to pass muster during so many years. Still more wonderful is it that Sprengel, Willdenow, and other great men who have been engaged on the work where this term appears, and who of course had access to *all* the editions, have never challenged it. I have consulted several editions, both prior to and posterior to the author's death, and I have invariably seen *Spicant.*

SPICILEGUS.

AIZOIDES.*

(*From a Correspondent.*)

"Audivi dudum cum risu a philosophis, etc., objici *oides* istud, ut quamprimum viderint librum botanicum, licet botanices parum gnari, ausi fuerint certare se dignum judicium in authorem daturos: evolverunt modo indicem, et si observarint plura nomina in *oides,* etc., mox enunciarunt eum non esse botanicum sed *botanicoidem.*"—Ex Linnæi Critica Bot., p. 34.

Subjoined is an attempt to answer the following question,—"Sir,—Can any of your readers inform me of the *true* derivation of *aizoides?*" The gist of the question is stated by the epithet *true.* J. B. presumes it to be from αιεζωειδης, viz. resembling the αειζωον, or Houseleek. Nobody will dispute this; and the natural or literal or verbal sense of the term is equally indisputable, viz. that αει is *semper,* or always, or ever; and ζωον is, in Latin, *vivum,* or living. Again, the term *Sempervivum,* whereby

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* See Phytologist, vol. ii. p. 359.

Theodore Gaza translated the Greek *αειζωον*, four centuries ago, is as exact a rendering of the original as can possibly be given. The English term *everliving*, or *everlasting*, is also a sufficient equivalent of either *αειζωον* or *aizoon* or *sempervivum*. Billerbeck, in his 'Flora Classica,' p. 114, writes thus, in reference to Aizoon:—*αειζωον* is derived (leitet man) from *αειθαλες των φυλλων*, wherefore (wesshalb Gaza es durch) Gaza named it *Sempervivum*. With deference to these learned men, it is hereby submitted that *aizoon* is rather formed or derived from *αει*, *semper* or always, and *ζωος*, *ζωα*, *ζωον*, living; or, in Latin, *vivus*, *viva*, *vivum;* and the adjectives are in these languages respectively derivations of *ζαω* or *ζῶ*, I live, and Latin, *vivo*, I live. This derivation is preferred, because more expressive of a distinguishing characteristic of the plant. Many plants are *evergreen*, which is the proper rendering of *αειθαλες*, but few plants are gifted with such tenacity of life as is common in the plants called *Sedum*, *Crassula*, and *Sempervivum;* for *aizoon* has been applied to some species belonging to all these genera. Thus far J. B.'s presumption coincides with the view as above stated. His next question is, "But is it nothing more than a singular coincidence that the only two plants to which this specific (name) is given, so far as I am aware, viz. *Draba aizoides* and *Saxifraga aizoides*, have both yellow petals?" This question is not quite so easily solved as the first one, about which there cannot be the slightest difference of opinion among etymologists, though they may have but a smattering of this rather *obscure* science. The term *aizoides* means 'like an *Aizoon*,' and consequently we should first ascertain what *Aizoon* is, in order that we may have some apprehension of Aizoon-like plants, or plants resembling the *Aizoon*. In the first place, it may be taken for granted,—that is, a fact which may be assumed,—that there is no plant mentioned in the writings of the most ancient botanists more easily identified than this plant, called *Aizoon* by Pliny, *αειζωον* by Theophrastus and Dioscorides, and *κρινανθεμον επι των οικων φυομενον* by Hippocrates. This assumption will be readily conceded by those who are best acquainted with the history of plants from the earlier ages, down through the Latin period of rule, through the middle ages, and the centuries that have elapsed since the revival of both letters and science; that is the literature and science of the ancients. It is the Houseleek, which is mentioned by Hippocrates as growing on walls, and which was observed by Sibthorp, almost in our own times, growing in similar places in Constantinople and Greece.

Pliny, who unites several plants under this term *Aizoon,* as our ancient botanists included many species and genera of modern days under the names *Sedum, Sempervivum,* or *Crassula,* distinguishes the Houseleek by the term *Hypogeson,* a plant growing under projecting *eaves,* or in spouts, *gutters,* or on walls and on roofs. Another ancient author, Op. Aurelius, further writes that it was planted on roofs, because in some places there was an opinion prevalent among the people ("in nonnullis locis plebis animos invaserit opinio") that the houses whereon the Houseleek grows would not be struck by lightning ("non feriri fulmine domum in cujus tegulis Sedum vireat"). This explains the medieval name *barba Jovis,* Jupiter's beard; *herba tonitrui,* as the glossologists among our Anglo-Saxon progenitors construe *Hamwyrt,* or House-wort, or Houseleek. The same plant is called Husloek in the ancient German language, also *Donderloek* or Thunderleek, which is given as an equivalent of *Semperviva* or *Sempervivum.* The Swedish *Täklök* is also a synonym of the same well known species. Assuming this to be the original Aizoon, which has *not yellow* but rather pinkish or pale rose-coloured flowers, it may be further surmised that the colour has little or nothing to do with the application of the specific term *aizoides* to the few plants wherewith *it* is associated. But even admitting that colour is one of the qualities in which the resemblance consists, it is not the *sole resemblance.* There is another similarity existing between the Houseleek and the *Saxifraga aizoides,* viz. fleshy or succulent leaves; and there is another and more remarkable resemblance between the Aizoon and both the British species which are called *aizoides,—S. aizoides* and *Draba aizoides,*—viz. the rosulate or rose-like tufts of leaves which are formed by the barren shoots of both plants, and from the centre of which the future flowering stems of both these plants spring. This peculiarity is not confined to the Houseleek, though it be very prominent in it, but exists more or less among the species included in the genera *Sedum* and *Sempervivum.* Nor is it exclusively characteristic of the two species termed *aizoides* in the genera *Draba* and *Saxifraga,* but it does exist nearly as prominently in them as it does in the Houseleek.

SUPERSTITIOUS USES OF PLANTS.

By GEO. JORDAN.

Herbs were first used medicinally by the pagan priests, in the earlier ages of the world. They dedicated them to their gods, who endowed each herb with supernatural virtues. In after-times the monks continued to practise physic like the pagan priests, but dedicated the plants to the Saints. They, as did the pagan priests, practised the healing art in all its kinds, using charms, amulets, and many other mystic rites, which still are frequently made use of in rustic practice.

If a leaf of *Potentilla reptans* (Creeping Cinquefoil) is laid under the head on Midsummer Night, the person would surely dream of his or her future partner in conjugal felicity.

For the hooping-cough, seek a Bramble that groweth at both ends, and hold it up while the afflicted is passed under and over nine times. Another remedy for the same complaint is to look for a person riding on a piebald horse, ask him what is good for the chin-cough; that which he recommends is considered infallible. The rider is fully prepared with an answer, for when this disease is prevalent he becomes a person of some importance.

As an amulet, to cause children to cut their teeth without pain, the roots or stems of *Hyoscyamus niger* are cut into beads and hung round the child's neck. After the same manner *Verbena officinalis* is used for the cure of scrofula. For the cure of rupture (hernia) seek an Ash-tree which has not lost a branch, carefully slit it through, then pass the afflicted through this slit nine times, then carefully bind up the tree, and as it heals so will the aperture in the person. It would be much more rational to bind up properly the diseased part; then a cure might be expected. Nine is a mystic number: medicine must be taken nine times to be of any use.

CARDAMINE HIRSUTA OR SYLVATICA, OR BOTH.

Only recently I spent the three last weeks of September and the first week of October among the hills of Clent, in Worcestershire and Shropshire. The above plant or plants were flowering in the greatest profusion in the fir-woods between

Clatterbatch and the Warden hills during all that time, and for a long previous period. I could not perceive the least difference between those growing in the dry woods and those growing alongside the rills that flowed from the hills, or under the hedges, or by the waysides and thoroughfares of the valleys. In both habitats the plants were equally rough and bushy. Many years ago I noticed a slender and smooth variety of *Cardamine hirsuta* or *sylvatica* in dry sandy woods of West Surrey, very different in habit from our Worcester acquaintance. The Surrey plants never assumed the bushy appearance of the Clent plants, and as they were early flowerers few of them survived the month of April. The branchy form of the plant continued in flower in the vales of Surrey all the summer. Has any reader of the 'Phytologist' any remarks by him on these two forms, or spare specimens of them in his herbarium? Either would be very acceptable to the subscriber. I.

SPIKENARD.

"Then Mary took a pound of ointment of Spikenard, very costly, and anointed the feet of Jesus, and wiped His feet with her hair: and the house was filled with the odour of the ointment."—*John* xii. 3.

The marginal note to Bagster's Comprehensive Bible, on Spikenard, is as follows:—"Spikenard is a highly aromatic plant, growing in India, whence was made a very valuable unguent or perfume, used at the ancient baths and feasts. It is identified by Sir W. Jones with the *Surubul* of the Persians and Arabs, and *Jatamansi* of the Hindoos; and he considers it a species of the Valerian, of the *Triandria Monogynia* class of plants. The root is from three to twelve inches long, fibrous, sending up above the earth between thirty and forty ears or spikes, from which it has its name. Stem, lower part perennial, upper parts herbaceous, suberect, simple, from six to twelve inches long; leaves entire, smooth, fourfold, the inner radical pair petioled, cordate, the rest sessile and lanceolate; pericarp a single seed, crowned with a pappus."

Whether the above is correct or not I cannot say, but I think the following, from Dr. Pickering's [Prichard's?] 'Races of Man,' is important:—"With respect to the Nard or 'Spikenard' of

Solomon's Song, the modern Arabic name seems to indicate the Rose. Indeed, the notice of the Nard in Mark is sufficiently descriptive of the essential oil, or attar of roses. This substance is perhaps mentioned by Homer and Pliny; and Celsus, about the year 27, expressly speaks of the distillation of roses." Theophrastus and Pliny both allude to the presence of the Rose in Egypt. The plant is foreign to the natural vegetation of Egypt, but is extensively cultivated in that country for commercial purposes. It seems probable that the ointment used by Mary contained attar of roses, and its being described as very costly agrees with the fact that Roses are among the flowers which yield their oil in very minute quantities, so that 20,000 are required to yield a rupee weight of oil, which sells for £10 sterling (see Johnston's 'Chemistry of Common Life'). The fragrance of this oil is well known as being very powerful, and this also agrees with its property as described in Scripture.

In Mark's Gospel, where the same scene is described, the woman is said to have had an alabaster box of ointment of Spikenard, very precious, which was poured on the head of Jesus, and also that it might have been sold for more than three hundred pence, about £9 English money. S. B.

THIRSK NATURAL HISTORY SOCIETY.

Botanical Exchange Club.

The monthly meeting of the Thirsk Natural History Society was held on the evening of Wednesday, the 6th of April. Mr. A. G. More, of Bembridge, Isle of Wight, was duly enrolled as a member of the Botanical Exchange Club.

Mr. J. G. Baker announced that the list of desiderated Flowering Plants and Ferns for the season was in a forward state of preparation. He exhibited specimens collected in Warwickshire, by Mr. Kirk, of *Ranunculus Drouetii* and *Arctium pubens* of Babington.

Mr. J. H. Davies noticed and exhibited Mosses as under:—

Sphagnum rubellum, Wils.—Fifeshire: Dunmore Woods, in fructification, *Dr. Lyle.*

Bryum torquescens, B. and S.—Gloucestershire: Cleere Hill, near Cheltenham, *Mr. Beach.*

Hypnum fluviatile, Swartz.—North Yorksshire: in fruit, on the north side of the Yore, near Tanfield, *J. G. Baker;* and also in the Swale, at Aisenby, *J. H. D.*

Dicranum spurium, Hedw.—West Yorkshire, 1858: Sawley Moor, with *Didimodon flexifolius.*

Reviews.

Gleanings among the British Ferns; Illustrated by dried Specimens. By Jane M. Patison. London: William Pamplin, 45, Frith-street, Soho-square.

A crabby reviewer would write in a peevish mood, "Another publication on Ferns!" Yes, gentle public, another work on British Ferns, and illustrated, as the fair authoress declares, by genuine specimens. This new book, on a very popular subject, contains, first, an elegant and copious description of the plant, with much graphic matter about the scenery, the solitudes, the awful solemnities of the places where the said species grow; and then there is the beautiful object itself, so delicately manipulated, so daintily handled, so nicely attached to the paper, that one is in a fix, as our transatlantic cousins would say, to decide whether the Fern is most to be admired, or the patience, neatness, and good taste of the authoress. It may perhaps be a new fact to the authoress of the 'Gleanings among the British Ferns,' yet it is a fact, that *Cystopteris montana* was discovered by Mr. Thomas Westcombe in a locality which he considers the *third* in Scotland. He does not specify where this locality is, but it is probably on the range of hills between Glen Lochay and Glen Dochart, and, consequently, not far from the place where it was collected by Mr. Borrer and Mr. Brown in 1841.

Under *Polypodium Phegopteris,* p. 18, it is stated that this name is a misnomer, because the Beech-Fern, as it is called, does not grow in beech-woods. This might be true if the species were confined to the British Isles, and if we were to construe the component parts of the term *Phegopteris* literally, a procedure rather unusual among botanists, and especially among etymological botanists, and there may be some whose botany even does not outgrow their etymology. The original sponsor to this name did not confer it on the Fern because it grows in beech-woods, nor did the author of *Dryopteris* name the *P. Dryopteris* thus because it grows under Oaks. Names are not *always* significant of the properties and accidents of the objects which they represent. 'Always' is italicized, to draw attention to a possible fact that although *P. Phegopteris* does not grow in beech-woods in Britain, yet it does grow in woods, and these woods might in other lands and in other times have been beech-woods. *P. Dryopteris* is so named because its leaf somewhat resembles an oak-leaf, and because it grows among Oaks. *P. Phegopteris* might have been so named from the imaginary resemblance of its fronds or *pinnæ* to beech-leaves, or it may, like many other plants, have been named on the principle of *antiphrasis,* as the Greeks would say, or on that of *lucus a non lucendo,* as the Latins say; or, as it may be said in plain English, it was so called because it does not grow in beech-woods.

The *Cystopteris montana* is doubtless the gem in the collection, but the following are charming examples of less uncommon but equally beautiful Ferns, viz. *Asplenium Trichomanes, A. viride, Lastrea dilatata,* and *Athyrium Filix-fœmina,* var. *molle.* In these it is difficult to say whether the skill and taste displayed in the selection and mounting, or the objects themselves, are more admirable. The external ornamentation, *i.e.* the binding of the book, is very effective. The green colour of the boards, and the gilding, harmonize well together. The typography is all that one could wish in a work which, considering the style in which it is produced, is by no means to be regarded as a costly ornament of the drawing-room table.

Possibly the fair authoress of these charmingly illustrated fern-gleanings will not be displeased to learn that the exquisite example of *Asplenium viride* has a representative or a counterpart far beyond the bounds of Europe, if the following account does not mislead us:—"On the higher part of the mountain (Mouna Kuah) I gathered a Fern identical with the *Asplenium viride* of my own native country, a circumstance which gave me inexpressible pleasure, and recalled to my mind many of the happiest scenes of my early life."*

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* Douglas's Account of his Travels in Hawaii, in Comp. Bot. Mag., vol. ii. p. 166.

The Californian Farmer.

Some unknown friend of ours or of the 'Phytologist's' sent a copy of the abovenamed transatlantic paper to our office. For this the sender is well entitled to the Editor's cordial thanks, which are hereby transmitted to said correspondent. This journal from the far-west appears to be conducted in a genial spirit, as well as in a spirited manner. Little indeed of its contents can be transferred to our pages, yet we have the pleasure of bidding our contemporary "good speed," and of congratulating the citizens of the rapidly advancing State of California, on their having a periodical so wide awake to perceive the capabilities of the province, and possessed of a staff of editors and contributors so efficient in setting them before the public. The subjoined notice will speak for itself. We have not room for the cut which heads the article, of which only an extract or two are given, but if the cut is not an exaggerated representation of the fruit, the Lawton Blackberry is as large at least as a Greengage Plum.

"*The New Rochelle or Lawton Blackberry.*—We give below a description of the fruit, etc., and can recommend it safely to our farmers here, as a most valuable acquisition, and one that will repay handsomely for the slight amount of investment. Mr. Seymour in his letter, says: 'The New Rochelle Blackberry sends up annually large and vigorous upright shoots with lateral branches, all of which, under common cultivation, will be crowded with fine fruit, a portion of which ripens daily in moist seasons for six weeks, commencing about the middle of July. They are perfectly hardy, always thrifty and productive, and I have not found them liable to injury by insects or blight. The vines grow quite large,—many of them over an inch in diameter, and the fruit hanging in very thick clusters,—in size more like the large Greengage Plums than ordinary Blackberries. The flavour is not apparently diminished by its large size, and the few seeds is not its least recommendation. We think this berry a valuable acquisition to our domestic fruits, and worth a place in every garden.'"

After some directions for cultivating the plants, there is the following description of the fruit, which is such as to make the mouth water:—

"The fruit is juicy and fine-flavoured, with very few seeds. The size can hardly be appreciated by those who have only seen the common varieties—sixty to eighty berries of about the ordinary size will fill a quart measure. The yield is very great, single canes yielding from four to eight quarts. Five hundred to one thousand ripe or growing berries have been counted upon average bearing canes. An inch to an inch and a half is about the average diameter, though larger berries are quite common. It has been tried for wine, eight quarts of berries producing five quarts of pure juice, making a most palatable as well as medicinal wine."

The accounts of the size and excellency of the Melons, Pumpkins, Gourds, and Cucumbers, also of the Pears and Apples, are extraordinary.

Madeira Ferns collected by N. H. MASON *in* 1856. William Pamplin, 45, Frith-street, Soho.

As it may be thought unusual to review mere collections of plants, the following is offered deferentially as a plea for departing from the customary practice. First, Ferns are, if we may judge from the great demand there is for works on the subject, and if we may be excused writing astronomically, in their ascending node; and we hope it may be long ere they reach their culminating point. Again, between mere collections of Ferns, and Ferns mounted on drawing-paper and accompanied by alternate pages of letter-press, there is not a very wide difference. Finally, there is no place where they can be so properly noticed as among the notices of botanical works.

Of these Madeira specimens, several, viz. *Asplenium marinum, Polypodium vulgare, Adiantum Capillus-Veneris,* and *Trichomanes radicans*, are examples of British species. Such luxuriant forms are never seen in British grown specimens of the above-mentioned. *Polypodium vulgare* may indeed occasionally be seen as large as the Madeira form of this common Fern, but where can we collect British examples of *Asplenium marinum, Adiantum Capillus-Veneris,* and *Trichomanes radicans* varying from 18 to 24 inches in length? The other species in this beautiful selection are *Asplenium canariense, Polystichum frondosum,* a remarkably fine plant (specimen), *Asplenium palmatum, Polypodium drepanum, Woodwardia radicans, Adiantum reniforme, Lastrea elongata, Elaphoglossum muscosum,* and *Dicksonia culcita.* In the collection there is one Lycopod, *L. complanatum.* These are mostly tropical species, the British species and a few south of Europe examples, such as *Woodwardia radicans* and *Asplenium palmatum* excepted. These may be also called tropical or subtropical, for their centre of distribution is very far south of the British Isles, their extreme limit in Europe. These fine specimens have not only been collected with much judgment, the rhizomes and the fructification being quite perfect, but they are exceedingly well dried, and where the paper is not stinted, and when properly mounted, they will form almost magnificent objects.

The Natural History Review and Quarterly Journal of Science.
London: Williams and Norgate.

This number contains first an article well merited, viz. a memoir of the late Dr. Ball, one of the joint editors of the 'Review.' The account of his visit to Arran, and of its antiquities and natural productions, is worth perusal. The botanical information is scanty, and the zoological not very plentiful. *Matthiola, Astragalus*? sp., and *Zostera marina,* are all the examples recorded of Arran's botany. The Reviews are devoted to some of the publications that have recently appeared on Arctic expeditions; in these there are a few zoological but no botanical notices. Among the Reviews there is one entitled 'Gosse's Omphalos.' It is to be assumed that *all* our readers know what this term means. It has been recorded that there is a sect of oriental sages or meditative pundits who spend whole days and weeks in looking at that particular part of their physical system which some people would scruple to name. These waggish reviewers of the Emerald Isle appear to believe that Mr. Gosse has some crotchet or other about Creation,—or Creation's being a violent irruption into the circle of nature. All this is about as intelligible to us as the doctrines and practices of the celebrated gymnosophists of antiquity.

From the proceedings of the Dublin Natural History Society we make the following extract of additional botanical facts made known through the instrumentality of this Society:—*Erica ciliaris* (as a native of Ireland?), *Potentilla floribunda* (what is this? is it in Babington's last edition?), *Arabis Crantziana* (will some good-natured, liberal Hibernian send us an example of this?), *Lonicera Xylosteum* (as Irish), *Saxifraga Andrewsii, Spiræa Filipendula* (as Irish), *Simethis albus* (what is this?—*Asphodelus albus,* Miller?), *Allium Babingtonii, Equisetum elongatum, Lophodium spinosum, Polyporus betulinus* (not *betululinus*), *Nitella hyalina*, etc. "The number of additional species given to the world through this medium far exceeds 100."

There are, it may be, some botanists who would demur to this claim of the Dublin Natural History Society. Some of the species may be *new* to the members of that learned body, but several of them were known to botanists centuries before the said Society existed, *Lonicera* and *Spiræa* for example. These may have been published as natives of Hibernia by her energetic sons, but they grow in England and in other parts of the world, and were noticed and published by Ray, Smith, and other botanists who have been long gathered to their fathers. This number is illustrated by several shaded and coloured lithographs and woodcuts.

BOTANICAL NOTES, NOTICES, AND QUERIES.

On why Ferns are not Attacked by Insects.

(*From a Correspondent.*)

It would seem that the Ferns and their allies are *occasionally* eaten by animals. I have myself observed that donkeys frequently crop the fronds of the common Brake (*P. aquilina*). At page 106 of Fremont's 'Expedition to the Rocky Mountains,' the writer says their horses and mules fed upon *Equisetum hyemale*, and in another part speaks of their animals luxuriating on "*Prêle*" (Horsetails, *Equisetum*). As *E. hyemale* contains more silex in its cuticle than many of the other kinds, the above fact is the more remarkable, and may lead us to infer that the plants of the genus would not remain untouched by the grazing animals. Many species are used for food in tropical countries. In Huc's 'China,' it is stated that in default of other vegetables they boiled the young shoots of a Fern, which they found not unpalatable. Dr. Hooker, in his 'Himalayan Journal,' p. 293, says: "Ferns are more commonly used for food than is supposed. *Botrychium virginicum* is boiled and eaten in the Himalaya, and by the natives in New Zealand. In Calcutta the Hindoos boil the young tops with their shrimp curries, and both in Sikkim and Nepaul the watery tubers of an *Aspidium* are abundantly eaten. So also the pulp of one Tree-Fern affords food, but only in times of scarcity, as does that of another species in New Zealand (*Cyathea medullaris*); the pith of all is composed of a coarse sago, that is to say, of cellular tissue with starch grains." I apprehend that "the particular property" which preserves Ferns from the attacks of insects is the bitter principle which they possess, and has led to several kinds being employed in medicine as vermifuges.* The larva of *Hepialus Velleda* (Swift Moth) feeds on the roots of the common Fern (*P. aquilina*). Probably the late lamented author of the 'Testimony of the Rocks' is quite correct when he asserts "that the Ferns on our hillsides scarce support *the existence of a single creature.*" If there be any creatures who exist *solely* on a Fern diet, the naturalist must look for them in the highlands of tropical America, where the Tree-Ferns flourish, and the genus attains a more luxuriant growth than it now does in the temperate regions. I enclose part of a frond of *Scolopendrium vulgare*, from my herbarium, which has been devoured by the grub of some insect. J. G.

ENORMOUS FUNGUS.

(*From the Doncaster, Nottingham, and Lincoln Gazette.*)

There is now growing in the subterranean passage or tunnel on the premises of Mr. William Senior, near Shakespeare's Head, Doncaster, a most interesting specimen of *Hydnum Barba-Jovis*, or Jove's-beard, a species of British fungus. Within the tunnel are growing several specimens of this elegant plant. Two are especially worthy of remark, the largest of which measures about thirteen feet in diameter, and is of substance like fine plush or down, purely white. It commences growing from an oak beam which has been placed to support the roof of the cave, and in its growth downwards adheres closely to the sandstone rock, the sides of which are perpendicular, this beautiful plant extending in every direction its fan-like shape, and forming a semicircular margin. For a reason why a specimen of this species of fungus, which has appeared in several places in the kingdom, and has been described by most authors on British botany, has attained so large a size, we give the following:—It is growing in a cave or tunnel, probably a hundred yards from the entrance, and the atmosphere in the part where it grows differing little in winter from summer, always dark, invariably damp, and constantly temperate; that the plant can increase in size until the source from whence its nourishment was first obtained becomes exhausted, and that does not seem to be the case until it reaches an enormous size, far beyond any former described limits; increasing progressively and regularly; and besides the original root, sandstone surface may also afford nutriment to perpetuate its health, so that a continued growth is the consequence, while the specimens noticed by popular botanists, ancient or modern, may have been produced under quite different circumstances, as alternate dry and wet, or after the plant has attained a moderate growth suddenly becoming dry, or the plant may have first vegetated in a propitious situation and congenial atmosphere, when the sun attaining a higher altitude has penetrated the recess in which it has been growing, a stoppage in its growth would no doubt follow. The size given by Sir J. E. Smith is twelve inches in diameter, and no other author in describing it has exceeded these dimensions. Mr. Henry Senior, who lives in the Castellated Rock House, will gladly facilitate the curious visitor. And, by the bye, the Rock House is worth seeing—a house cut purely out of the solid sandstone rock: such a dwelling might have been expected by a visitor to Petræa, but in this place is quite a novelty, and no description will be equal to that of beholding the place itself.

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* In M. A. de Jussieu's 'Botanique,' p. 561, the following account of the properties of Ferns is given:—"Dans plusieurs Fougères des pays chauds, les souches contiennent un principe nutritif qui permet de les employer à l'alimentation; mais dans les nôtres, le mucilage est mêlé à un autre principe, quelquefois stimulant et même purgatif, qui les rends impropres à ce premier usage, utile au contraire à la médecine."

SAMUEL APPLEBY.

The Rev. M. J. Berkeley describes it as under:—"Sometimes a foot or more broad; white when young, then yellowish-rufous; membranaceous, composed of the finest down, margin byssoid (silky or cottony), pure white. Spines simple, almost two lines long, their tips somewhat pencilled."

GERANIUM STRIATUM.

I see a notice of *Geranium striatum* being found near Barnstaple in your last number. I have specimens in my herbarium collected in Enys Woods, between Truro and Falmouth, in Cornwall, where, I am told, it grew abundantly, and seemed quite naturalized. I observed it once in a hedge here (Minehead), but it had evidently escaped from the cottage gardens near.

J. G.

DISCOVERY OF A NEW MUSCARI

On Mount Ida, or near the sources of the ancient Scamander, which flowed through the plains of ancient Troy, by Dr. Kirk, the naturalist appointed to accompany Dr. Livingstone in his expedition to the Zambesi.—"In the neighbourhood of the Scamander we found Saxifrages, Geraniums, *Dentaria bulbifera*, etc., among the fine timber of *Pinus Pinaster*. There, as in other places, the *Muscari* was picked in considerable quantities." The description of this new species is given by Dr. Kirk in the following brief terms:—"*Muscari latifolium;* scape erect, about twelve inches high, bearing at its base a large, sheathing, broadly-lanceolate, rather obtuse, solitary leaf; flowers numerous, forming a raceme about two inches in length, the lower ones shortly-pedicellate, the upper ones barren, sessile; perianth tubular, blue, in the fertile ones inflate below."—From the Proceedings of the Edinburgh Bot. Soc., as reported in the 'Gardeners' Chronicle,' April 3, 1858.

HUTCHINSIA PETRÆA.

Plants in bloom on March 29:—*Anemone nemorosa*, *Veronica hederæfolia*, *Nepeta Glechoma*, *Salix Caprea*, and *Taxus baccata*. *Hutchinsia* is very fine and abundant in the old place.

J. S. M.

EXOTIC ESCAPES.

The following garden escapes were observed growing by the side of the road between the town and the back-gate of the Botanic Garden, Cambridge:— *Ferula communis*, *Valeriana rubra*, *Datura Stramonium*, *Nicotiana Tabacum*, *Hyoscyamus niger*, *Dipsacus sylvaticus (sylvestris?)*, *Lamium album* [this might be here though there was no botanic garden nigh], *Verbascum Thapsus* [item], *Salvia mollis*, *Lavatera alba*, *Polygonum articulatum*, and a species of *Amaranthus*. JOHN LLOYD.

[We should be much obliged to our correspondent for specimens of the *Salvia*, *Lavatera*, *Polygonum*, and *Amaranthus* which he saw near Cambridge.]

CUSCUTA TRIFOLII.

It is interesting to ascertain that this plant has long been an inhabitant of Britain. I have lately obtained a specimen of it which was published by Dickson in his 'Hortus Siccus Britannicus,' in or about the year 1800. It is numbered fasc. 15.6 of that collection, was then named *C. europæa*, and was found on Lucerne, near Croydon. Smith referred it to *C. Epithymum*, without any remark, in his 'English Flora,' notwithstanding that Dickson issued, in the next number of the same fasciculus, the real *C. Epithymum* under its true name.

It thus appears that the plant has been known in this country for more than half a century.

A remark made by Dr. Grenier in the 'Flore de France' is well deserving of attention, because it shows a difference of procedure in this plant and *C. Epithymum*, totally incompatible with identity of species. He remarks that *C. Trifolii* attaches itself to its victims in regular circles, and so tightly as to strangle it, but that *C. Epithymum* adheres loosely and irregularly, and therefore has not the same destructive character. Since my attention was called to it I have noticed that this is the fact.

CHARLES C. BABINGTON.

OAK-LEAF FUNGUS.

Mr. Jerdon has been kind enough to notice what I stated on this subject, since which time I have again examined the object in question, and I still think it is *a fungus*. If the object were produced by an insect, we should expect to find the leaf punctured, and the excrescence enclosing an egg or grub: but this is not the case. The fungus is attached to the leaf at the base of its stem, and it has the exact appearance and form of an Agaric. As I before stated, I do not find that it is the envelope of the egg or grub of an insect, as we see in the common round oak-galls.

I hope Mr. Jerdon and others who are more acquainted with the Fungus tribe than I am, will more closely examine these productions, and decide the question *whether they are fungi*. S. B.

PRUNUS AVIUM (*Wild Cherry, Merry-tree*).

In the 'Flora Vectensis' there is a note to this as follows:—"*Merise* is thought to be a contraction of *amère cerise*, from the *bitterness* of the *wild* cherry. (Loudon's Arb. B., art. *Cerasus*.)" I have always found the *P. Avium* (called Cherry in many places in England) to be sweet, but from this it would appear questionable. There is a note or two upon the subject in the late numbers of the 'Phytologist.' I hope it will not prove after all to be a kind of *Dulcamara*. I trust, this season, to gather some from the trees growing near here, to taste and try.

Ryde. VECTIS.

LONG PURPLES.

Will "W. P.," who has a note on this in the March number of the 'Phytologist,' be good enough to say in what county the *Orchis Morio* is called Long Purples? I think "S. B." is correct in stating that the Long Purples of Shakespeare is the *Orchis mascula*, because that flower appears to answer that description more correctly than any of the other Orchids. Does "W. P." know whether any of the Orchids having bulbous roots are called, in any part of England, *Dead Men's Fingers?* It appears to me that the latter names would more properly apply to an Orchis having palmate roots. An author I read the other day states that the *Orchis Morio* is called, in Sussex, Dead Men's Fingers. VECTIS.

HASTINGS BASKETS.

I visited Hastings in the Autumn, some years ago, and there purchased a small basket, made, as I was told, of a Grass which grew near that place, by a blind family. The baskets are strong, and have a scent like green tea, which they still retain. I should feel obliged if some of your correspondents will give me the name of this Grass. H. B.

A correspondent who is pleased to call himself *Bubulcus*, wishes to learn something about the *once* famous Tussac Grass (*Dactylis cæspitosa*). This *terræ filius* has been recently reading "Notes on the Botany of the Antarctic Voyage," by the learned Director of the Royal Gardens of Kew, where this Grass is called the "gold and the glory of the Falklands, and which, it is hoped, will make the fortune of Orkney and the owners of Irish peat-bogs." Can any of our readers inform this clodpate if these golden dreams and sanguine hopes have been realized?

What is *Lolium spicatum* (vol. ii. p. 233, October)?

In the same page *Ornithopus perpusillus* is Englished by Birdsfoot Trefoil. It is not a Trefoil. It may be called 'the very little Birdsfoot;' the legumes resemble very much the claws of a little bird.

In the same paper there is the following:—"Wild Celery abounds, together with the Willow-herb." Which of the Willow-herbs?

Your lively correspondent is far behind in the science of the present age. *Rubus fruticosus* is no longer received by the scientific as the name of any plant. It is ignored in these march-of-intellect days. The name only remains as a vestige of the ignorance of past times, and a warning beacon for posterity. It is now superseded, or rather, it has become the parent of a "numerous offspring, lovely like *itself*."

CENSOR.

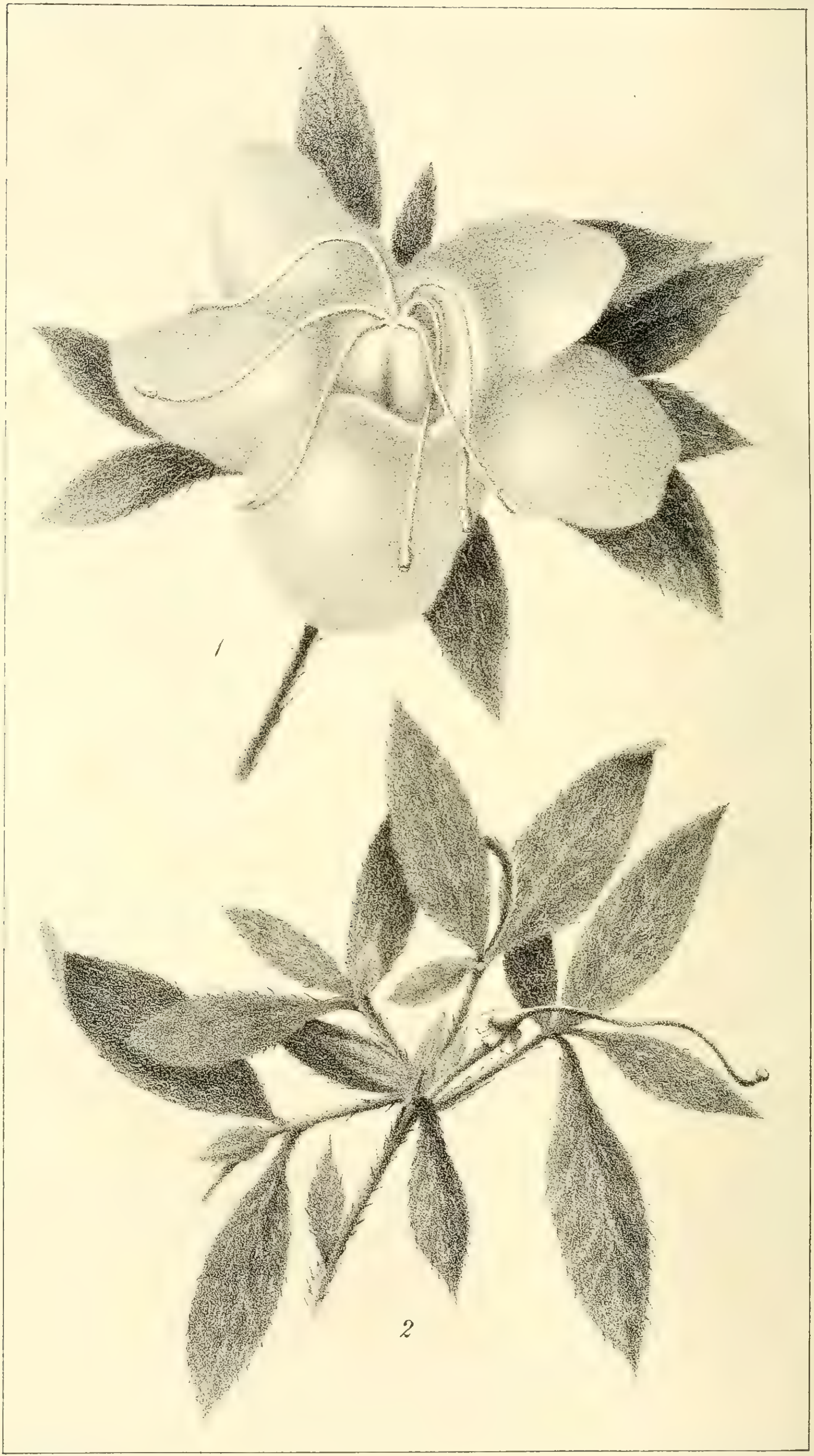
Communications have been received from

Charles C. Babington, F.R.S.; John Barton; Sidney Beisly; G. B. W.; A. G. More, F.L.S.; J. G. Baker; T. W. Gissing; Charles Forrest.

BOOKS RECEIVED FOR REVIEW.

The Doncaster Gazette, etc.

Page 449. Vol. 2.



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CONTRIBUTIONS TO VEGETABLE TERATOLOGY.

By MAXWELL T. MASTERS, Lecturer on Botany, St. George's Hospital, etc. etc.

(*With a Plate.*)

The importance of Teratology as one of the most efficient aids in unravelling the problems of Morphology, is now so fully established, that no apology need be offered on this account, for bringing the subject under the notice of our readers. The writer trusts that the following account of some instances of deviation from the ordinary condition of the plants mentioned will not be without interest, and that it may serve as an addition to the number of similar communications made at various times by other observers.

The homology existing between a flower and a branch is well shown in two specimens of *Azalea,** in which all the peduncles of the umbellate inflorescence, except one, were represented by a number of leaf-bearing branches, which arose from the axils of certain spathulate leafy bracts. Some of the bracts passed by a series of intermediate forms into the condition of hairs (fig. 2). The flower presented in both instances a reflexed, five-parted calyx, and a curiously deflected corolla (fig. 1), whose tube, immediately above its origin, was abruptly bent downwards for nearly half an inch, and then rose and expanded into a five-lobed limb. The other portions of the flower presented nothing unusual in their appearance.

ON THE NATURALIZED PLANTS OF GREAT BRITAIN.

[We are indebted to a correspondent for the following abstract from the 'Géographie Botanique' of De Candolle.]

The perusal of De Candolle's valuable article upon the naturalized plants of Britain having led to an examination of the opinions held upon this subject by our three principal authorities, it has been thought that the details may be acceptable as presenting in a small compass a concise view both of the differences in opinion among the English writers, and of the manner in which some of the doubtful points have been treated in the 'Géographie Botanique.'

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* See the Plate facing this page; fig. 2, transition of peduncles into branches, etc.

A plant is here defined to be thoroughly naturalized when it is found, with every appearance of a native, growing and reproducing itself regularly without the assistance of man; it must also be proved acclimatized by having survived for a period of years embracing all the varieties of temperature. Such a plant is to be carefully distinguished from those species which obtain only a precarious footing upon the soil (usually near to houses and cultivation), and disappear in the course of a few years unless kept up by repeated importations of seeds: these latter are termed "adventitious," and are liable to be cut off by a severe season.

The weeds of cultivated land are not considered naturalized, since the greater part of them would disappear if the ground were left untilled. On the other hand, many of the plants which are peculiar to waste places, about houses, walls, ruins, and rubbish-heaps, might continue to find *azotized* stations suitable for their growth even if the human race were removed. Some of both classes however may have had originally wild stations independent of human influence; the tillage-weeds, on broken ground along river-banks or on the seacoast; the others, near the dens and in the haunts of wild animals.

A species is not entitled to be called naturalized if when once planted it spreads by means of its roots only, without producing seed;* this is the naturalization of an individual, not of a species.

Three kinds of proof are employed by De Candolle to ascertain whether a plant be native or otherwise.

1. First the old Floras are consulted to see if they mention the species at all, and in what manner, whether as an undoubted native in their time or not. Another kind of *historical evidence* is derived from a knowledge of the invasions or migrations of different races of mankind, and of their commercial intercourse with one another.

2. The names in popular usage are next examined, to inquire if the plant in question had a name in the older language of the country in which it is now found.

3. The *botanical* proofs relate to the nature of the habitat, whether it is in the vicinity of houses, cultivation, or sea-ports;

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* But is not *Anacharis Alsinastrum* an instance of this?

whether the species is still spreading (like *Veronica Buxbaumii* with us); whether it is an annual that produces numerous small seeds likely to spring up readily in tillage; whether it is a common weed elsewhere, a hardy and encroaching plant; whether the structure of its seeds offers any unusual facility for transport by means of hooks, spines, pappus, or glutinous secretion. Above all, it is essential to observe by how great an interval a plant is removed from the principal habitation of its own species or genus.

De Candolle divides* the plants of a country into cultivated and spontaneous.

The cultivated comprise two sections.

1. Those *cultivated purposely*.

2. Those *cultivated unintentionally;* tillage-weeds, corresponding pretty nearly with the "agrestal colonists" of the 'Cybele Britannica,' but they include also several (such as *Linaria minor*) that are termed "agrestal," or even "glareal" natives, as well as a few "aliens."

In the subdivision of spontaneous species a more elaborate plan is followed by placing them under five heads.

1. *Adventitious:* aliens that are not well established.

2. *Naturalized;* species thoroughly established and acclimatized, but of whose foreign origin there is no doubt.

3. Species perfectly established, but respecting which the *probabilities are* in favour of a foreign origin; these are by De Candolle included with the preceding under one term of *naturalized.*

4. Species to whose indigenous origin but *slight suspicion* is attached.

5. Indigenous species.

There are 83 species enumerated as naturalized in Great Britain, they are distributed into the following sections.

Ten are from North America, and owe their introduction to garden culture or to accidental conveyance with merchandise or in ballast.

Senebiera didyma, L. C., B., H. & A.† Impatiens fulva.
Oxalis corniculata, B., H. & A.
Œnothera biennis.

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* Any one who feels desirous of adopting the distinctions here proposed might employ a double dagger ‡ for the *cultivated unintentionally*, the brackets [ ] for *adventitious* species, the asterisk * for the two classes of *naturalized* plants, reserving the simple dagger † for cases of slight suspicion, as in Babington's 'Manual.'

† The letters following the species printed in *italics* are intended to show which

Claytonia perfoliata.
Erigeron canadense.
Antennaria margaritacea.
Lysimachia ciliata.
Mimulus luteus.
Anacharis Alsinastrum.

Senebiera didyma is supposed to have spread from the sea-port towns of the south-west of England, since, if a native, it was too distinct in character to have escaped mention by English botanists until the year 1778, when Hudson first described it under the name of *Lepidium anglicum.*

Oxalis corniculata is thought to have reached Europe since the sixteenth century, but it is not certain that it may not be indigenous to Asia as well as America.

I. The other 73 Naturalized Plants are European species; of these, 23 are not found wild nor even well established in those parts of the Continent which lie nearest to England; geographical reasons therefore render it almost impossible for any of them to have reached Britain except through the agency of man.

Arabis turrita, H. & A.
Dianthus plumarius.
Silene italica, L. C.
Lonicera Xylosteum, B., Bromf.
Asperula taurina.
Valeriana pyrenaica.
Nardosmia fragrans.
Senecio squalidus.
Petasites albus.
Hieracium aurantiacum.
Cyclamen hederæfolium, B.
Linaria purpurea.
Astrantia major.
Myrrhis odorata, B., L. C.
Lonicera Caprifolium.
Acanthus mollis.
Rumex alpinus.
Iris tuberosa.
Iris xiphioides.
Crocus vernus, } Bromf.
Lilium Martagon, }
Allium Ampeloprasum.
Allium ambiguum.

Three, viz. *Arabis turrita, Lonicera Caprifolium* and *Senecio squalidus,* are traced to the botanic gardens of Cambridge and Oxford, and most of the others have been much cultivated. *Hieracium aurantiacum, Astrantia major, Petasites albus,* and *Rumex alpinus* may have been brought with alpine seeds from Switzerland. Only 4, viz. *Dianthus plumarius, Myrrhis odorata, Senecio squalidus,* and *Crocus vernus,* have reached Ireland.

It will be seen that 5 out of the above list have one or more advocates in favour of their indigenous origin in Britain, viz:—

Arabis turrita, which does not occur in Holland nor in the north of France, its station nearest to England being on the Vosges mountains.

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of our authors treat them as natives: L. C., referring to the 'London Catalogue,' 5th Edition; B. to the 4th edition of 'Babington's Manual;' H. & A. to Hooker and Arnott's 'British Flora.'

Silene italica grows in the south-east only of France.

Myrrhis odorata is absent from Holland and the north-west of France, but is indigenous to the mountains of eastern Germany, and also occurs less abundantly in Scandinavia.

Lonicera Xylosteum, a plant of more eastern longitude than Britain.

Cyclamen hederæfolium, an Italian species that scarcely reaches Switzerland.

In addition, *Crocus vernus* (a native of the mountains of central Europe) and *Lilium Martagon* were thought wild by Dr. Bromfield (see 'Phytologist,' vol. iii. 952, 968).

II. Two plants, *Sisymbrium polyceratium* and *Alyssum maritimum,* are natives of Portugal and the Azores, but are unknown in Ireland and the west of France. Their introduction may safely be referred to garden culture.

III. The remaining 48 species are found in the countries of Europe nearest to England, in some cases with the appearance of indigenous growth, but more usually showing traces of an advance made during the last few centuries from the east and south-east towards the west and north-western parts of Europe. They are classed in the following manner.

1. Such as are often cultivated in fields, parks, and gardens, 29 in number :—

Anemone apennina.
Aconitum Napellus, L. C.
Pæonia corallina.
Corydalis lutea.
Saponaria officinalis, B.
Acer Pseudo-platanus, *Bromf.*
Sempervivum tectorum.
Petroselinum sativum.
Coriandrum sativum.
Centranthus ruber.
Tragopogon porrifolius, L. C.
Silybum Marianum, B., H. & A.
Vinca major.
Linaria Cymbalaria.
Antirrhinum majus.
Cheiranthus Cheiri, H. & A.
Isatis tinctoria.
Cochlearia rusticana, B.
Dianthus Caryophyllus.
Rumex scutatus.
Aristolochia Clematitis.
Euphorbia Lathyris, B.
Mercurialis annua, B., H. & A., L. C.
Pinus maritima.
Narcissus poeticus.
Narcissus biflorus.
Narcissus incomparabilis.
Ornithogalum nutans.
Tulipa sylvestris, B., H. & A.

Aconitum Napellus has its home in eastern Germany and the Alps, the extreme limit of its range falling short of the French side of the Channel. It is not probable that so conspicuous and well-known a plant could have escaped the notice of the older English botanists.

Cheiranthes Cheiri grows wild in Greece, but with us, as in the north-west of Europe, upon ruins and old walls.

Cochlearia rusticana is thought to be a native of eastern temperate Europe, its range having been extended by cultivation.

Saponaria officinalis has better claims than most others in the same list; it has stations sufficiently near to Britain, and was known to Gerarde and Ray as growing wild by *stream-sides.* Watson however gives the *coast* of Devon and Cornwall as the only place where the *Saponaria* seems indigenous. On the whole, De Candolle inclines to consider it an escape from cultivation.

Tragopogon porrifolius. Even the French station in Normandy becomes suspected, being so far removed from the plant's native habitat in Dalmatia.

Silybum Marianum has but slight claims to nativity in Spain, still less in other parts of Europe. Its home is to be sought in the East, whence the Crusaders are supposed to have imported it.

Euphorbia Lathyris occurs wild in Normandy, which is probably its furthest advance to the north-west.

Mercurialis annua. It will be remembered that Dr. Bromfield thought the "French Mercury" might have been derived with garden-seeds from Holland (Phyt. iii. 823). De Candolle equally considers it an importation, but as a pot-herb, from France.

Tulipa sylvestris, rare, and too often a doubtful native in Holland and Normandy, and was in the time of Linnæus considered an introduced plant in Sweden.

2. The next section comprises plants whose seeds are easily transported:—

Alyssum calycinum, B.
Althæa hirsuta.
Echinospermum Lappula.
Anchusa officinalis.
Anchusa sempervirens, L. C., Bromf.
Asperugo procumbens, L. C., B.
Urtica pilulifera, H. & A., Bromf.
Rumex pulcher, L. C., B., H. & A.
Ononis reclinata, B., H. & A.

Alyssum calycinum, probably sown with corn.

Anchusa sempervirens and *Asperugo procumbens,* both conspicuous plants that offer strong indications of a very recent extension of range in Britain. The *Anchusa* however is included in all the Floras of the west of France, and *Asperugo* is said to be common in Normandy.

Urtica pilulifera, from its name of "Roman Nettle," was perhaps introduced at the time of the Roman domination in Britain.

Rumex pulcher De Candolle considers to have become established in Europe during modern times. Though a striking species, it was scarcely known to the old botanists: its native country may have been Tartary and the Caucasus.

The seeds of *Ononis reclinata* are more likely to have been transported upon birds or in ships than in any other way; possibly they were conveyed by ocean currents to the Scotch locality; but as the plant is a native of Portugal and the sand-hills of the west coast of France, had its range extended originally to Galloway, we should expect to find it equally in Ireland, or the south-west of England.*

3. A third section consists of 10 species, whose presence in Britain is not readily explained, either by their frequent cultivation, or by the structure of their seeds :—

Geranium pyrenaicum, L. C., B., H. & A.
Sedum dasyphyllum, B., H. & A.
Sedum album, B.
Pyrethrum Parthenium, L. C., B., H. & A.
Datura Stramonium.
Scrophularia vernalis, L. C., B.
Linaria supina.
Veronica Buxbaumii.
Lamium maculatum.
Euphorbia Cyparissias.

Geranium pyrenaicum was unknown to the old English botanists; it is found truly wild in the east only of France.

Sedum dasyphyllum. The English stations are on walls, and too often near gardens. As a wild plant it grows at Maestricht, in Holland, and in the department of Calvados, in the north of France.

Sedum album, like the former, has not sufficiently wild stations in England.

Pyrethrum Parthenium. We are told its native habitat is in the mountains and hills of Turkey and south-eastern Europe, whence it has been conveyed for the sake of its use in medicine. The French and German stations are as suspicious as our own.

Scrophularia vernalis. A distinct species not mentioned by our old writers, nor is it certainly indigenous on the neighbouring parts of the Continent.

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* We can only quote *Sinapis monensis* as an example of a plant belonging to Watson's "Atlantic Type," that is found in (both England and) Scotland, without reaching Ireland.

Several of these, being found near houses, on walls and rubbish-heaps, and by roadsides, are very liable to be carried accidentally, or mixed with agricultural seeds.

It will be remarked that out of the 83 species which are here treated as thoroughly naturalized in Great Britain, no less than 27 are considered indigenous by some one or more of the English authorities; five in particular that are universally admitted by our writers deserve separate mention :—

Senebiera didyma.
Geranium pyrenaicum. } "Denizens," Cybele Britannica.
Pyrethrum Parthenium. }
Rumex pulcher.
Mercurialis annua.

The introduction of all our naturalized plants is ascribed to the agency of man; the influence of winds, currents, or birds is extremely doubtful, and only admitted as barely possible in one instance, that of *Ononis reclinata*, the sole representative of the *Leguminosæ*, a family whose seeds above all others are able to resist the action of salt-water.

The absence from the list, of such plants as grow in saline situations on the coast, is worthy of attention, and seems to disprove any recent transport by marine currents; and in the same way the pappus of the *Compositæ* and *Valerianaceæ*, on which so much stress is usually laid, has not greatly raised their number above the proportion found among the indigenous plants. Still less is thought of the influence of birds in carrying seeds to any distance, or across an arm of the sea; thus the hypothesis that the seeds of *Cotoneaster vulgaris* were deposited on the Orme's Head by some redwing or fieldfare migrating from Norway, is dismissed as highly improbable.

There are but very few cases where seeds appear to have been carried on the clothes, or attached to bales of merchandise, or with ballast; the great majority of our introduced plants, European as well as American, have become disseminated through cultivation in gardens, or traffic in agricultural seeds; and it is remarked, in support of this view, that most of the naturalized species occur in the south of England, which is more thickly inhabited, and where gardens are more general, though allowance must be made for its more favourable climate. On the other hand there is but one aquatic, man being but little interested in that class.

This leads to an inquiry as to the time when these naturalizations were effected, and the dates are given as follows :—

Since 1724 there have been introduced into Britain 55 species.

Between the discovery of America and 1724, 9 species, viz. :—

Anemone apennina.
Antennaria margaritacea.
Erigeron canadense.
Datura Stramonium.
Linaria Cymbalaria.
Anchusa sempervirens.
Asperugo procumbens.
Rumex pulcher.
Mercurialis annua.

Between the time of the Roman dominion in Britain and the discovery of America, 10 species :—

Dianthus Caryophyllus.
Saponaria officinalis.
Tragopogon porrifolius.
Silybum Marianum.
Vinca major.
Aristolochia Clematitis.
Narcissus biflorus.
Narcissus incomparabilis.
Lilium Martagon.
Allium Ampeloprasum.

During the rule of the Romans, 1 species :—

Urtica pilulifera.

Perhaps earlier than the Roman epoch, 7 species :—

Isatis tinctoria.
Cochlearia rusticana.
Cheiranthus Cheiri.
Pyrethrum Parthenium.
Sempervivum tectorum.
Sedum dasyphyllum.
Sedum album.

At a date that cannot be ascertained, 1 species:—

Ononis reclinata.

To resume, the present dispersion of plants by natural means seems only to take effect very gradually, and almost exclusively, over tracts of continuous land, though marine currents do transport a few species to great distances in the tropics. So far as human experience goes, an arm of the sea, be it ever so narrow, presents an almost insuperable barrier. This has also been observed by Gussone in Sicily and Ischia; species abundant on the neighbouring coast of Italy are never known to be carried across the straits by any agency of winds, currents, or birds. Indeed it seems as if the natural means of transport had exhausted themselves during the long ages which preceded the human epoch: with man a new and most powerful agency was introduced, and it is to him and his commercial and agricultural operations that we are compelled to attribute nearly all the known cases of naturalization, and this leads inevitably to the conclusion that islands which share in the Flora of a continent received their indigenous plants while still joined to it. Yet we can scarcely pretend to appreciate the effect which may have been exerted by natural causes through so great a length of time, and under such different conditions of our planet, as are proved by Geology.

What is said of many plants belonging to the other three sections of Spontaneous species cannot here be quoted at length. It will suffice to mention that among the Indigenous are to be found the two Hellebores, *Chelidonium majus, Berberis vulgaris, Brassica oleracea, Erysimum cheiranthoides, Diplotaxis tenuifolia* and *D. muralis,* all the Ribes, *Vinca minor, Senecio saracenicus, Fœniculum vulgare, Stachys germanica, Fritillaria Meleagris, Spartina alterniflora ;* and two that generally pass for colonists, *Sinapis alba* and *Thlaspi arvense.* Dr. Bromfield's playful remarks (Phyt. vol. iii. p. 889) having been mistaken for earnest, it is thought necessary to pronounce in favour of *Tamus communis.*

Doubts are expressed as to the nativity in Britain of *Chenopodium Bonus-Henricus, Brassica campestris** and *Rapa, Vicia sativa,** *Prunus Cerasus,** *Prunus domestica, Buxus sempervirens,* and *Lactuca Scariola* (which is perhaps the wild form of the Garden Lettuce).

Papaver somniferum, Camelina sativa, Lepidium Draba, Cucubalus baccifer, Cuscuta Trifolii, and *several Verbasca,* rank as merely "adventitious."

The "involuntarily cultivated" include *Valerianella olitoria, Polygonum Convolvulus?, Anagallis cærulea* (*A. arvensis* being native on sand-hills), the Poppies, Fumitories, etc. Several others belonging to these sections will be better reserved for the next part of our subject.

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* In chapter ix. of the 'Géographie Botanique,' treating of the origin of cultivated plants, it is stated that *Brassica campestris* (and its variety *Rapa*) is found wild throughout Scandinavia, Siberia, and Russia, from the Baltic to the Caucasus. *B. Napus,* with much the same range, is the more southern plant of the two: probably neither extended originally to Great Britain.

Vicia sativa is a native of southern Europe, Greece, etc.

Prunus Cerasus grows wild in the forests of southern Caucasus; in western Russia it is thought only naturalized. *Prunus domestica* is also a native of *Asia.*

To obtain as clear a view as possible of our "suspected" species, those printed in *italics* have been selected from the 'London Catalogue of British Plants' (5th edition); from Babington's 'Manual' (4th edition) those to which a * or † is prefixed; and from Hooker and Arnott's 'British Flora' the "starred" plants.

On comparing together these lists the plants readily arrange themselves under three classes.

1. Species with two authors out of three in favour of their being indigenous to Britain.
2. Species with only one author in their favour.
3. Species rejected by all three.

We have only space to enumerate the two former, with the omission of a few extinct alpine and critical plants.

1. Admitted to pass as natives both in the London Catalogue and in Babington's 'Manual,' but "starred" in the 'British Flora:'*—

Aquilegia vulgaris. Native!
Iberis amara. "
Lychnis alpina. "
Impatiens Noli-me-tangere. "Nat." Cyb.
Medicago falcata. } "Denizens,"
Medicago sylvestris. } Cyb. Brit.
Melilotus alba. "Alien," Cyb. Brit.
Trifolium Molinieri. Native!
Sedum reflexum. "Native," Cyb. Brit.
Myrrhis odorata. } "Denizens,"
Campanula Rapunculus. } Cyb. Brit.
Campanula rapunculoides.
Asperugo procumbens. }
Scrophularia vernalis. } "Denizens,"
Verbascum Blattaria. } Cyb. Brit.
Salvia pratensis. }
Teucrium Botrys. "Native?" Cyb. Brit.
Daphne Mezereon. "Denizen," Cyb.

De Candolle pronounces—

Indigenous:
Salvia pratensis.
Daphne Mezereon.
Asarum europæum.
Humulus Lupulus.

Subject to some doubts:
Campanula Rapunculus.
Setaria viridis.
Digitaria humifusa.

Naturalized:
Myrrhis odorata.
Asperugo procumbens.
Scrophularia vernalis.

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* Though Ireland is excluded from De Candolle's treatise, *Sisyrinchium anceps* might be placed here. This plant is believed to be a very dubious native in the single Irish locality; and, as Woodford is 20 miles from the coast, the supposition of any transport across the Atlantic becomes inadmissible. Most of the "Denizens" of 'Cybele Britannica' are printed in the same type as Natives in the London Catalogue.

Asarum europæum. } "Denizens,"
Humulus Lupulus. } Cyb. Brit. native!
Ulmus suberosa.
Salix acuminata.
Populus alba.
Populus canescens.
Cyperus fuscus.
Setaria viridis. } "Denizens,"
Digitaria humifusa. } Cyb. Brit.
Galium Vaillantii.

Adventitious :
Teucrium Botrys.
? Verbascum Blattaria.
? Medicago sylvestris.
? Medicago falcata.
? Melilotus alba.

Cultivated unintentionally,
Iberis amara.
Galium Vaillantii.

On the others no decision is given, though it may be presumed several are thought so certainly indigenous as to require no comment.

2. Admitted as natives in the London Catalogue and 'British Flora.'

Ranunculus arvensis.
Bromus secalinus.

De Candolle considers both *cultivated unintentionally.* (Yes)

The first receives the mark of slight suspicion, the second is enclosed in brackets, by Babington.

3. Admitted in Babington's 'Manual' and in the 'British Flora,' but *italicized* in the 'London Catalogue :'—

Ononis reclinata. native.
Geranium Phæum.
Oxalis corniculata.
Prunus domestica.
Sedum dasyphyllum.
Fedia carinata. } "Denizens,"
Carduus Marianus. } Cyb. Brit.
Tulipa sylvestris.
Stratiotes aloides.
Avena strigosa.

De Candolle says—

Indigenous, none.

Doubtful native,
Geranium Phæum.

Naturalized :
Ononis reclinata.
Oxalis corniculata.
Sedum dasyphyllum.
Carduus Marianus.
Tulipa sylvestris.

Cultivated unintentionally :
Fedia carinata.
Avena strigosa.

Alien ?,
Stratiotes.

The *Stratiotes* is said to come from the far-east of Asia, Moluccas, Java, and Malabar: all the plants gathered in France belong to one sex.

4. The London Catalogue stands alone in admitting the following :—

Adonis autumnalis.
Delphinium Consolida. } "Colonists," Cyb. Brit.
Aconitum Napellus.
Tragopogon porrifolius.
Anchusa sempervirens. } "Denizens," Cyb. Brit.
Leucojum æstivum. Native.
Silene italica. "Alien," Cyb. Brit.

De Candolle considers—

Indigenous, none.

Doubtful,
Leucojum æstivum.

Naturalized:
Aconitum Napellus.
Tragopogon porrifolius.
Anchusa sempervirens.
Silene italica.

Cultivated unintentionally:
Adonis autumnalis.
Delphinium Consolida.

All except the last receive the mark of less certain introduction in Babington's 'Manual.'

5. Babington admits—

Barbarea præcox.
Armoracia rusticana.
Alyssum calycinum.
Brassica Napus.
Saponaria officinalis.
Mespilus germanica. } "Denizens," Cyb. Brit.
Sedum album. Native.
Eryngium campestre.
Bupleurum falcatum. Native!
Lonicera Xylosteum.
Pulmonaria officinalis. Native!
Mentha viridis. "Denizen," Cyb. Brit.
Teucrium Chamædrys.
Cyclamen hederæfol. "Denizen," Cyb.
Euphorbia Esula.
Euphorbia Lathyris.
Salix rosmarinifolia.
Populus nigra.
Crocus nudiflorus,
Galanthus nivalis,
Muscari racemosum, } "Wild," Bromf.
Native!

De Candolle says—

Indigenous:
Barbarea præcox.
Eryngium campestre.
Bupleurum falcatum. Native!
Galanthus nivalis.
Muscari racemosum.

Doubtful:
Mespilus germanica (*introduced ?*).
? Euphorbia Esula (*naturalized*).

Naturalized:
Armoracia rusticana.
Alyssum calycinum.
Saponaria officinalis.
Sedum album.
Lonicera Xylosteum.
Cyclamen hederæfolium.
Euphorbia Lathyris.

Adventitious:
Teucrium Chamædrys.
? Brassica Napus.

Cultivated (variety),
Mentha viridis.

6. Hooker and Arnott admit—

Arabis turrita.
Cheiranthus Cheiri.
Hesperis matronalis.

De Candolle says—

Indigenous:
Ribes Grossularia.

Ribes Grossularia. "Denizen," Cyb.
Doronicum plantagineum.
Orobanche ramosa.
Urtica pilulifera.

Doubtful (possibly native):
Hesperis matronalis.
Doronicum plantagineum.

Naturalized:
Arabis turrita.
Cheiranthus Cheiri.
Urtica pilulifera.

Thus, out of the whole number of our disputed natives, but 10 obtain De Candolle's verdict in their favour; there are however a few more which he is inclined to think may be natives of Great Britain, though the English writers do not. These plants are—

Carum Carui.
Peucedanum Ostruthium.
Maianthum bifolium. native
Anemone ranunculoides.
Doronicum Pardalianches.
Tilia europæa.
Tilia grandifolia.
Xanthium Strumarium.
Castanea vesca.
Ornithogalum umbellatum.
Leonurus Cardiaca.

The three first have the stronger proofs in their favour. As with all others that have been discussed, their claim to be considered indigenous depends chiefly upon geographical reasons; they are found upon the neighbouring continent in analogous situations, and sufficiently near to England to admit of their range extending across the Channel. If more scarce with us, this rarity may be owing to their *being at the extreme limit of their range;* and it is this very circumstance that presents the greatest obstacle to forming a safe opinion upon the scarcest and most local species of the south of England.

In such a matter the well-known experience of M. De Candolle entitles his opinion to great respect, and the details given are well worthy of careful study. But it should not be forgotten that any one who reasons upon geographical grounds will always be liable to lay greater stress upon the general facts of Continental distribution, than upon the nature of the special localities in which the plants are gathered by the collecting botanist.

We must now conclude, in the hope that our brief summary may prove of some little service to those of our English botanists who have not access to the original; but to appreciate the various arguments and the judicious and impartial remarks of M. De Candolle our readers will necessarily refer to the work itself.

HEBONY AND HEBANON OF SHAKESPEARE.

(From the 'Gardeners' Chronicle,' Feb. 27, 1858.)

It is here stated (see above) that *Atropa Belladonna* is probably the plant wherewith the Majesty of Denmark was poisoned (see 'Hamlet,' Shakespeare). In the 'Gardeners' Chronicle,' as above, there is a quotation from Buchanan, which relates that an army of Danes was poisoned by a mess of bread pudding mixed with the juice of the berries of *A. Belladonna,* which, in the quotation, is said to grow copiously in Scotland. It is not now plentiful in Scotland. It would be difficult now to collect enough of the fruit of this plant to poison a colony of rats.

The original states that Macbeth gained a great victory over the Danish army when intoxicated or weakened by this mixture, which was "magna vis panis et vini, tum e viti tum ex ordeo (hordeo) confecti, ac succo infecti herbæ cujusdam veneficæ cujus magna copia passim in Scotiâ nascitur."

It appears from this quotation that the mess was made of wine and ale thickened with bread, a worse dish than Athol brose. Buchanan's description would apply to the *Atropa;* but it is one of the rarest of English plants, and it does not grow naturally further north than York or Westmoreland.

FRUGILEGUS.

EPILOBIUM LIGULATUM (NOT LINGULATUM).

By C. C. BABINGTON, F.L.S.

. . . . In many parts of England the more frequent plant of the two allied species *E. obscurum* and *E. tetragonum*, is the former; and it has been, and probably continues to be, usual then to look upon it as the *E. tetragonum.* Its leaves being very much more lanceolate, it is not wonderful that that term has been used for the species formed of the two combined (*E. tetragonum* and *E. obscurum?*).

Perhaps the true *E. tetragonum* may not grow usually in North Yorkshire, and that Mr. Baker's difficulty is caused by a want of familiarity with it.

The fact that neither *E. obscurum* nor *E. palustre* "occurs at all" in the place where *E. ligulatum* abounds, does indeed seem conclusive against the idea of hybridity. I hope that such may prove to be the case; for I greatly dislike explaining difficulties by its agency. I believe that hybrids are exceedingly rare, when plants are left to themselves, in their native places; and that the ascription of hybridity to a plant is usually simply a mode of hiding our ignorance of its true place in Nature. Generally such plants are either extreme forms of species, or are specifically distinct. I hope that Mr. Baker may be able to *prove* that the latter is the case with his plant. Mr. Baker's statement is satisfactory, as being a decided answer to what had been told to me, viz. that the *E. palustre* is abundant in company with *E. ligulatum;* and also, if my memory does not deceive me, that *E. obscurum* grows there.

I shall be exceedingly obliged to Mr. Baker for the promised specimens. I have now good shoots springing from the offsets of the same root that produced the flowering stems of last year.

NOTE.—A part of this communication, for which we beg to thank Mr. Babington, has been reserved for the present. That which mainly concerns the readers of the 'Phytologist' is printed. The part unprinted and at our office will be sent to Mr. Baker, if his friend Mr. Babington will send instructions to that effect.—ED.

LICHENS GROWING NEAR SETTLE.

By JOHN WINDSOR, M.D.

(*Continued from page* 426.)

Marchantia conica. Highhill Lane.

Marchantia hemisphærica. Near Settle.

(Of the *Jungermanniæ,* near Settle, I have no collection or memoranda.)

Beomyces roseus. Near Park House, beyond Ingleton.

Opegrapha varia. Pretty common.

Endocarpon miniatum. Rocks at the north end of Highhill, opposite Attermire.

Urceolaria scruposa. Wall in Butcher Lane, near Settle.

Lecidea geographica. Plentifully on rocks near Park House, beyond Ingleton. On rocks or stones between Steeinforsts and Pennyghent; also on the banks of the Ribble, near Settle.

Lecidea simplex. On micaceous sandstone, as the top of Gregareth, etc.

Lecidea sulphurea. Walls in Highhill Lane.

Lecidea icmadophila. On Moughton, near Settle.

Lecanora atra. Stone walls about Highhill, etc.

Lecanora Parella. Stones on Moughton; also on stones on the north side of the old site of Giggleswick Tarn.

Squamaria crassa. Rocks about Kelcowe, plentifully.

Squamaria candelaria. Cave-hole Wood.

Squamaria Clementi. Near Settle.

Parmelia saxatilis. Near Park House. On a wall leading from Ribble-side to Giggleswick.

Parmelia scortea. Near Settle.

Parmelia caperata. Near Settle.

Parmelia omphalodes. Wall near Giggleswick Tarn.—(With its parasite, *Endocarpon parasiticum*).—Peart's Crags.

Parmelia tiliacea. On a tree in Cave-hole Wood.

Parmelia parietina. Ribble-side, below the Bridge.

Parmelia Physodes. On the first wall in Peart's Crags, above Settle.

Collema fluviatile. Plentiful on stones in the rivulet under Malham Cove.

Collema marginale. In a small stony field just above Upper Settle, towards Stockdale, and also in Highhill Lane.

Solorina saccata. Rocks north-west side of Ingleborough. On Penyghent Hill; and in the Gill near Penyghent House.

Peltidea canina. On a tree in Cave-hole Wood. Kendal's Gill, near Catteral Hall. Rocks on the north-west side of Ingleborough.

Cetraria glauca. On the first wall dividing Peart's Crags, etc.

Cetraria Islandica. North-west summit of Ingleborough, and on Gregareth.

Borrera chrysophthalma. Near Settle.

Borrera ciliaris. Walls near Settle; common.

Borrera tenella. Cave-hole Wood, and on a wall on the right-hand side of the lane leading to Settle old corn-mill.

Borrera furfuracea? On a wall near the old site of Giggleswick Tarn.

Ramalina scopulorum. Near Settle.

Ramalina farinacea. Stackhouse Borrins.

Alectoria jubata. On the first wall which divides Peart's Crags.

Cornicularia aculeata. On the same habitat as the last.

Sphærophoron coralloides. Peart's Crags. On large stones in Stockdale Gill. Near the old site of Giggleswick Tarn. Near Park beyond Ingleton.

Cladonia uncialis. On the moss by the side of Malham Tarn, etc.

Cladonia rangiferina. Wall on Peart's Crags. Near Park House.

Scyphophorus pyxidatus. Wall in Butcher Lane, Upper Settle. Wall on Peart's Crags. On the grass above Giggleswick Scar, etc.; not unfrequent.

Scyphophorus fimbriatus. Plentiful about Giggleswick Scars, among the grass.

Scyphophorus cocciferus. Rye-loaf Hill, etc., near Settle.

Evernia prunastri. On trees, as about Holbrig Hall, etc., near Settle.

Verrucaria Gagei. Giggleswick Scar, and other limestone rocks near Settle.

Roccella tinctoria. I find this amongst my Settle Lichens, but cannot be positive regarding its locality.

Chara flexilis. In a brook flowing from Giggleswick Scar to the old site of Giggleswick Tarn, beyond the first milestone (*folia obtusiuscula, caulis* teres *sine mucronibus*). Rivulet from Hunslet House to the old site of Giggleswick Tarn.

Chara vulgaris. Rivulet from Malham Tarn, just before it sinks into the ground.

Chara hispida. Rivulet, formerly running out of Giggleswick Tarn, June 23, 1813.

FIFESHIRE PLANTS.

Atropa Belladonna.

Referring to the note of H. F. B. in the 'Phytologist' for April, 1858, I find Miller, in his Dictionary, under *Atropa Belladonna,* says Buchanan relates the destruction of the army of Sweno the Dane, when he visited Scotland, by the *berries* of this plant, which were mixed with the drink which the Scots, according to Bruce, were to supply the Danes with. The Danes became so inebriated that the Scottish army fell on them in their sleep, and slew such numbers, that there were scarcely men enough left to carry off their king.

Miller also says the plant is extremely poisonous in all its parts, and that old Gerarde found it growing *near Highgate.*

H. F. B. states that the plant is by no means uncommon in Fife; and also that *the root* is somewhere said to be alluded to by Shakespeare in 'Macbeth,' where Banquo says, when the witches vanish from his sight,—

> "Or have we eaten of the *insane root*
> That takes the reason *prisoner?*"

I should be very glad to learn *where* and by *whom* it is said that this is the plant alluded to by Shakespeare in the lines above quoted.

There is frequent mention of the *leaves* and *berries* of the plant being used, but I cannot find in any author I have referred to that the *roots* have ever been eaten. Some of the commentators on Shakespeare say the *insane root* was the root of Hemlock, but they do not state whether the common Hemlock, *Conium maculatum,* or Water Hemlock, *Œnanthe crocata.* I should like to be informed whether the Fifeshire plants include these, and if they are *common,* particularly the *latter;* and if any plant growing there is called by the common people the *insane root.*

S. B.

FERNS NOT ATTACKED BY INSECTS.

Mr. Carrington's article in the April number of the 'Phytologist,' 1858, is important, as it gives *a reason why* insects do not attack Ferns; but I think the observation made by M. J. H. in the same number, *that a caterpillar attacked the leaflets of a favourite Adiantum,* amounts to little, even should it be considered an exception to a general rule.

This caterpillar might have had its natural food-plant destroyed in the confines of a greenhouse, and become necessitated to make a meal off the *Adiantum,* but what effect it produced on the *green monster* we are not told. It might be worth asking M. J. H. the name of the caterpillar; that is, what butterfly or moth produced it. In looking through Westwood's 'British Butterflies,' in which figures are given of the insects, and of the plants on which the caterpillars feed, I do not find any representation of a Fern.

I may here observe that Turner, in his Herbal, in speaking of the "vertues of the male ferne," says, "The roots of the male ferne driveth *out the broad-worms of the belly.*" He also says, if a man cut the roots of this Fern in the middle, it will show on each side a black eagle with two heads. Referring to what is said of the Ferns in some manuscript notes to an old copy of Dodonæus, I find it mentioned that the roots of the *Filix-mas* driveth forth and killeth broad-worms, and the leaves of this and another kind, put into the bed-straw, "driveth away the stinking punayces and all other such-like worms." S. B.

ON 'SUNOICOUS' AND OTHER BOTANICAL TERMS.

In reply to our correspondent who asks the meaning of the above term, and to our contributors generally, the following is respectfully submitted. In the first place, it is a fact that the Editor does not know the scientific meaning or application of '*sunoicous*,' and therefore he cannot define it. Its literal or grammatical sense may be rendered by *social* or *domestic*, or perhaps more explicitly by *living together*, or *dwelling in the same house*, or *being fellow-citizens of the same state or country;* and it would, in conformity with the usages adopted in the case of such derivations, be written *synoicous*, from *συν*, together, and *οικος*, a dwelling.

The word comes from a sufficiently creditable source, but it is not necessary. It does not appear in Lindley's 'Botanical Glossary,' nor in any other glossarial scientific work at hand; therefore it is judged to be superfluous. It would not be amiss if the inventors of new terms were enjoined to explain them; and even then such terms would not obtain currency unless they were wanted. New terms are wanted only when new things, or new attributes of things, or new combinations of things, are to be described. Necessity is in these cases a sufficient justification for introducing linguistic novelties. The term *sunoicous*, or *synoicous*, may be intended as an equivalent for the inelegant and barely decent term *hermaphrodite*, a term applied to flowers which have the essential organs of fructification contiguous or surrounded by one or by two series of floral envelopes, or by none at all. In common or even scientific language, such flowers may be termed *perfect*, without any risk of ambiguity. It is only surmised that it is not a synonym of *monœcious*. Finally, we hoped that our learned correspondent who introduced the word would have given its explanation. The answer above tendered is offered with some misgivings that its import has been by us misapprehended; but we have done our best.—Ed.

COCKLE.—A NUT TO CRACK.

(See 'Phytologist' for April, 1858.)

We must refer to the monkish records to know what cockle bread was, unless our botanists will satisfy us that it was made of the seeds of the Corn Cockle (*Agrostemma Githago*), which, although the pericarp is *black*, contains a very white substance, like flour, and may be wholesome.

That the translation of the Hebrew word in Job xxxi. 40, is incorrect, there is no question. The marginal note in Bagster's Comprehensive Bible is as follows:—"*Cockle, noisome weeds. Bashah*, from *báäsh*, 'to stink,' rendered 'wild grasses,' is supposed by Hasselquist to be the *Solanum incanum* or Hoary Nightshade, which is common in Egypt, Palestine, and the East; but Celsius and Michaelis contend that it denotes the Aconite, a poisonous plant growing in vineyards."

There is not much difficulty in saying that the monks of the Wormwood Valley did not use Aconite in their bread, which would have been as destructive to them as the antimony which we are told was taken by the monks of another Order to make them fat.

In the translation of Paulus Ægineta, by Adams, he has the following on Cockle:—"*Ægilops.* There is a great difficulty in determining the grasses of the ancients. This may be seen by consulting the Herbal of Galen on this subject. The present article was probably *Ægilops ovata.* Dioscorides gives nearly the same account of it as our author, who copies Galen. He further mentions the juice of it, mixed up with flour and dried, was laid up for use. The Arabians borrow closely from Dioscorides."

Anti-Monachus.

THISTLES AND THORNS.

"And some fell among thorns, and the thorns sprang up with it and choked it."—Luke viii. 7.

In the 'Phytologist' for October last you have referred to the prevalence of Thistles in the Holy Land, and it appears to me that the word above rendered "thorns" may more properly refer to Thistles. I find in 2 Kings xiv. 9, the following:—"The thistle that was in Lebanon sent to the cedar that was in Lebanon, saying, Give thy daughter to my son to wife: and there passed by a wild beast that was in Lebanon, and trode down the thistle." And the marginal note to 'thistle' is as follows:—"*Choach*, which is rendered here, and in Chronicles and Job, 'thistle,'—in 1st Samuel, '*thicket*,' and Isaiah, '*bramble*,' and in Chronicles, Proverbs, Canticles, and Hosea, '*thorn*,'—is probably the black-thorn or sloe-tree, the *Prunus spinosa* of Linnæus."

Although I believe that Thistle is the plant referred to, I wish to know whether the *Prunus spinosa* grows in Palestine.

The following, which refers to Thistles, is in Turner's Herbal:—"*Acantha* in Greek, and *spina* in Latin, signify a *thistle*, and *not thorn*, as our schoolmasters' translators use to English it nowadays. The same word, *acantha*, doth St. Luke use in the Parable of the Sower, in the eighth chapter, and all the translators have *acantha, spinosa;* but the translators of Latin into English, not without a great *error, turn 'spinosa' into a 'thorn,'* whereas *spina* betokeneth not a 'thorn,' but a 'thistle.'"

A READER OF THE WORD.

THIRSK NATURAL HISTORY SOCIETY.

Botanical Exchange Club.

The monthly meeting of the Thirsk Natural History Society was held on the evening of Tuesday, May 12. Miss E. Burton, of Bowdon, Cheshire, and Mr. W. Mudd, of Great Ayton, were elected corresponding members.

Mr. J. G. Baker announced that the list of desiderata for the season had been printed and circulated, and that copies might be had upon application.

Mr. J. H. Davis reported two Mosses, new to North Yorkshire, as having been found by Mr. James Dalton in Cleveland:—

Discelium nudum, Brid. On clay at the foot of Kirby Bank, on the left-hand side of the Bilsdale bridle-road; sparingly.

Schistostega osmundacea, W. and M. In a dark cavern at the Wainstone rocks, with *Tetrodontium Brownianum*, fruiting plentifully. April, 1857.

He exhibited specimens of two curious *Sphagna*, forms of *S. contortum* and *cuspidatum*, collected by Dr. Lyle in Fifeshire.

Reviews.

Irvine's British Botany; or the Illustrated Handbook of the British Plants. Thomas Nelson and Sons, Paternoster-row.

On two former occasions (see p. 244 and p. 321 of the current volume of the 'Phytologist') this work, published in successive parts, has been already noticed; but as it has now been brought to a conclusion by the issue of the Fifth Part, it seems an opportune occasion to recall the attention of our readers to its scope and comparative merits.

Although we possessed previously to this publication some excellent manuals of British botany, yet they were confined chiefly to the descriptive department, whereas this, in addition, contains an introduction to the Science of Botany, occupying the whole of the First Part, in which the subject in its various relations is considered comprehensively, yet necessarily with some degree of conciseness, and, which is probably its most distinguishing character, in the most simple, intelligible, and perspicuous phraseology which the subject admitted.

In the Second Part the purely descriptive portion of the work commences, and occupies the greatest remaining part of the work, which is everywhere copiously illustrated by figures, representing the different Orders into which plants are reduced in what is called the Natural System of botany. In these figures the dissections and explanations given of the organs of fructification, etc., will be found to be very instructive, especially to junior students.

At the end of the descriptive part of the work (p. 791) there follows a useful appendix of some errata and corrigenda—almost unavoidable in a work of such extent. To this succeeds a most useful index, glossarial and etymological, where the author amply displays the extent and exactness of his acquirements in botanical and classical knowledge.

There is in the beginning a reference to the various works quoted, an explanation of the abbreviations used, a systematic table of the families (Orders) of British Plants, and the general contents.

On the whole it may, we believe, be confidently stated, and indeed inferred from what we have above related of it, that this work, on the subject it professes to treat, is the most complete of any yet offered to the public; and perhaps an additional recommendation, to many, at least, may be that it is offered at a price almost incredibly and certainly unprecedentedly small. J. W.

On the Botany of the District lying between the Rivers Cray, Ravensbourne, and Thames; being the first Report of the Botanical Committee of the Greenwich Natural History Club.

The author of the above-named pamphlet informs his readers that the limits of the district are defined "by a line commencing at the junction of the Ravensbourne with the Thames, thence up the course of the former to Keston Common; thence to the source of the Cray, in Orpington; thence along the Cray to its influx into the Darent, along the Darent to its junction with the Thames, and thence along the Kentish shore of the river to the starting-point."

The compiler of this interesting list is not quite accurate in stating that the sole British example of *Frankenia* is confined to salt-marshes on the eastern coast, unless he reckons St. Helen's Spit, Isle of Wight, to be so situated. The writer of this notice has collected it there, and it is registered in the 'Flora Vectensis' as a Vectian plant. In reference to *Hutchinsia petræa* and *Centranthus Calcitrapa*, the author very truly states that they grow on the wall of Eltham Churchyard; but it is respectfully submitted whether there be any authority for what follows, viz. "They are both of them escapes from the garden of a well-known botanist, who lived there many years ago." Another question may be asked: What is *Armeria tenuifolia?*—a misprint for *Arenaria tenuifolia?*

A few remarks on the list itself are deferentially offered to the consideration of the learned compilers. And first, among the *rarissimæ* is observed *Sisymbrium Irio*, a plant which has not, to our knowledge, been seen near London for many years, except in the Wandsworth station, near the steam-boat pier, and there it may be assumed on good grounds to be an introduction, not in ballast, but in corn. *Althæa hirsuta* is also generally unknown, except in a field between Cobham Park and Cuxton, Kent, excepting in the before-mentioned station near Wandsworth. *Oxalis corniculata* is almost unknown in the south-east of England. *O. stricta* occurs here and there in the valley of the Thames, and *O. corniculata* has been known to grow at Albury, near Guildford, for several years. The members of the Botanical Club are to be congratulated on the discovery of *Potentilla verna* in Kent. *Poterium muricatum* is another rare novelty. *Crepis paludosa* and *C. succisæfolia* are entered in the list probably by mistake; but if they are Kentish plants the 'Cybele' will require some alteration. *Crepis paludosa* is stated to range from 51° to 58°. The other species only reaches 54°. *Alchemilla vulgaris* and *Pinguicula vulgaris* are also entered as plants of North Kent. Does Mr. Salmon or Mr. Mill admit them as Surrey plants? *Primula farinosa* and *Salvia pratensis* may be placed in the same category as most of the above, *i. e.* doubtful natives or even naturalized plants of that part of Kent as defined by the members of the Greenwich Natural History Club. *Myosotis alpestris* and *Veronica humifusa* are alpine plants, never seen at so low an altitude as Shooter's Hill. Secondly, we venture to point out a few omissions or mistakes. On p. 15 there is printed *Spiræa Ulmaria, S. urbanum*, c, *intermedium*. *Geum* is omitted. *Erica Tetralix, sp. sola*. *E. cinerea* surely grows on Keston Common and probably in other parts within the district. *Veronica hederifolia* it is humbly presumed should be *V. hederæfolia*. For this and possibly other orthographic variations the compilers may plead the authority of the London Catalogue, and few will dispute the validity of the plea.

We hope the amiable chairman of the Botanical section of the Club will excuse our notice of these trivialities and receive our sincere thanks for his courtesy in giving us the pleasure of calling the attention of our readers to this very interesting document. Our obligations would be much enlarged if the members of the Club would, in a brief and simple way, tell us where and under what circumstances they find *Convallaria Polygonatum, Euphorbia portlandica, Ammophila arundinacea, Allium oleraceum, Hieracium prenanthoides, Crepis succisæfolia, C. paludosa, Erodium pimpinellæfolium, Gentiana Pneumonanthe,* etc.

It may further be mentioned that the number of phænogamous species is 810, and the cryptogamous species, mostly *Fungi,* is somewhat under 400. Many additions will subsequently be made by the members, whose zeal, labour, and success are hereby commended, and strongly recommended to the notice of all who are eager to spread useful knowledge.*

Thirsk Natural History Society. Botanical Exchange Club List of Desiderata for 1858.

We have much pleasure in giving publicity to the facts that Thirsk has a Society, organized and in active exercise, for the promotion of Natural History; and that Greenwich has also a Botanical Club. Some of the results of the northern Society have already appeared in the 'Phytologist.' The operations of the Greenwich Club have now for the first time been submitted to the notice of our readers. Neither of these publications is printed for sale, yet no apology is needed for their appearance in the 'Phytologist.' Most collectors of British plants are probably members of the Botanical Exchange Club; and if they are not, they may be counselled to become members, and thus aid in the good work of helping each other.

As the plants or species *desideratæ* are numerous, amounting to upwards of 600, doubtless many readers of the 'Phytologist' have in their herbaria duplicates of these *desiderata* (desirable things) as they are called. The genus *Ranunculus,* with its *species Babingtonianæ,* and its *R. reptans* elevated a step in this list, cuts a very respectable figure. *Draba inflata* has also been advanced to specific honours. Its sister *brachycarpa* is not wanted. The desired *Violets* and *Saginas* muster in force, as geologists say, there being six of the one and half-a-dozen of the other. *Hippophæ* (following the London Catalogue, the 5th edition of which is not remarkable for the accuracy of its orthography) is printed for *Hippophaë,* and *Scorduim* for *Scordium, tunbrigense* for *tunbridgense, cærulea* for *cœrulea,* and *Hypericum linariifol.* for *H. linariæfol.* Botanists are informed that "specimens of any novelties or excluded species will be acceptable."

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* The writer of the Report informs us that the names of Mr. J. M. Burton, the Rev. C. Clarke, and Mr. W. H. Tugwell were accidentally omitted from the Listof the Committee given in the Preface, and that the Club is indebted to Mr. G. B. Wollaston, of Chislehurst, for much valuable information.

The Friend; a Religious and Literary Journal of the Society of Friends.

An obliging correspondent, to whom the 'Phytologist' owes a heavy debt of gratitude for his most efficient aid, has just transmitted the above. On page 63 of this journal there is an article on the geographic origin of the commonly used species of plants. From this a few lines are here quoted, and on which some remarks may be expected from some of our correspondents best acquainted with such matters.

> "The multiform varieties of Cabbage and Cauliflower are usually supposed to have been derived from *Brassica oleracea,* a species which grows wild on the shores of Britain and of western Europe. Two varieties are mentioned by Theophrastus; but the Latin name seems to have been taken from the Celtic rather than the Greek. The cultivation of these plants was widely diffused in ancient times in Europe and western Asia, but to India and China they seem to have been carried at a comparatively recent date. Whether they owe their origin to *B. oleracea* alone, or have been modified from that and two or three other closely allied species which inhabit southern Europe is a doubtful point, but the latter seems the most likely alternative."

Again, the writer informs us that the "Potato, *Solanum tuberosum,* was brought from Carolina by Raleigh in 1585 or 1586. Clusius, who describes and figures the plant in a work he wrote, says that he received his specimens in 1588, from the Governor of Mons. It reached Italy from Spain and Portugal, and doubtless was brought to the latter countries direct from South America." From notes on Natural History, Meteorology, etc., it appears that "the coldest day of last year (1857) was on the 1st of February, when the mean temperature was 24°5′; the lowest in the preceding night, at 4 feet above the ground, 20°; and the lowest on the grass, 10°7′. The two consecutive weeks, ending July 18th and 25th, may be considered the hottest period of the year; the mean temperature of each week was 68°, a very unusual temperature to last for two successive weeks in this country. The hottest day of the year was the 28th of June, when the mean temperature was 73°7′, the highest in the shade 92°7′, and the highest in the sun 119°." The elevated social, moral, and religious tone of this periodical is highly commendable.

BOTANICAL NOTES, NOTICES, AND QUERIES.

DROSERA INTERMEDIA.

Sir,—I must express my thanks to Mr. Baker, through your pages, for calling my attention to the plant which I specified too hastily as *Drosera intermedia* at p. 309. On close examination it proves, as he anticipates, to be a mountain form of *D. anglica*, distinguished as a separate species under the name of *D. obovata* by some Continental botanists, but regarded by Mr. Babington as a mere variety of the normal form. I was originally led into the error by having only the 'British Flora' to compare my plant with, which happens to be singularly meagre in its descriptions of the *Droseræ*,—omitting all mention whatever of the var. *D. obovata*, as well as the important diagnostic by which Mr. Babington marks *D. intermedia*, viz. "flower-stalks decumbent at the base," a character which appears uniformly constant. Had I been provided with the 'Manual' at the time, I should not, I hope, have fallen into this inaccuracy.

J. BARTON.

HYPERICUM DUBIUM.

In the article on the Clent Hills in this month's number of the 'Phytologist' (April, 1858), attention is drawn to the presumed identity of *Hypericum perforatum* and *H. dubium*. The author will perhaps excuse me if I call his attention to one characteristic that I have found invariably in all plants that I presume to be *H. dubium*. Around the *margin* of the leaf is a row of *black* dots, which appear most distinctly in contrast to the other part of the leaf when held up to the light. This feature I have *never* seen on the leaves of *H. perforatum*. T. W. GISSING.

Wakefield, April 19, 1851.

PYRUS (SORBUS) AUCUPARIA.

This tree, the learned Rudbeck ('Atlantica,' t. iii. p. 62) informs us, derives its name, *Ron*, *Roan*, or *Rowan*, from Runic characters engraven on the living tree.

The letters cut in the green or growing wood formed a rigid elevation, owing to the direction of the sap towards the cut parts, which hardened like a stone. As the tree enlarged annually, so did the letters. Like the club of Hercules, these Runic clubs were used in war, and were doubtless very effective implements.

It has been recorded that the Rowan-tree is usual near Druidical monuments or ancient temples; also that it is the common tree in the churchyards of Wales, as the Yew is in those of England. These statements probably stand in need of confirmation. It is certain that the use of the wood was believed to have the power of averting fascination, the evil eye, and wicked spirits (see Evelyn's 'Silva,' xvi. Quickbeam). No wizard nor witch could stop a plough if there was a bit of the wood of this tree either in the plough or in the *graith* of the cattle. A *pettle*-handle of this wood was common in every plough. The cattle were driven to pasture with rowan-tree rods, which were laid up over the door of the byre or sheal-bothy. It was held in repute as a walking-stick; and some laid up the boughs in their bed-chambers. ZETA.

BALLOCHBOWIE FOREST.

(From Gardiner's 'Botanical Rambles in Braemar.')

"Seated on a bank of *Calluna vulgaris* and *Vaccinium Vitis-idæa*, I gazed in rapture at the lofty Pines that rose around me, with their unencumbered stems shooting up straight as arrows to the height of sixty, eighty, or ninety feet, crowned with dark, embowering branches, through which the now awakened breeze roared like the waves of the troubled ocean, and the sun at times darted his scorching beams to light up the pure drooping blossoms of *Pyrola media* and other wood-loving flowers that enamelled the rich flooring of these magnificent forest sanctuaries."

This is rather a long sentence, but it is intelligible and graphic. It evinces the writer's appreciation of Nature's beauties.

"I had wandered through many a wood ere now, and pried into many a sylvan nook. I had seen isolated trees of gigantic growth not a few; but never before had my eyes beheld such a noble assembly of mighty trees, nor my ear listened to such sublime strains of forest music."

BOTANY OF BRAEMAR.

"In ascending Ben Avon by a steep watercourse where the stream forms a series of little waterfalls all the way, the rocks about are beautifully adorned with flowers, and I collected many good things, particularly *Hieracium diaphanum* (what is this?), *H. alpinum*, *H. Schmidtii*, *H. Lawsoni*, etc., *Cochlearia grœnlandica*, *Epilobium alsinifolium*, *Botrychium Lunaria*, and upon the sloping face of a moist rock! *Cornus suecica*, in very fine condition."—*Botanical Rambles in Braemar.*

(See 'Phytologist,' vol. ii. p. 309.) *Ranunculus Flammula:* exceedingly common in all the ditches, and by the margins of the lakes. This seems to be the only representative of the *Ranunculus* in Braemar. Daisies do not appear in this list.

DAISIES IN BRAEMAR.

In the Botany of Braemar, by Mr. Barton, we are told that the sole representative of the Order *Ranunculaceæ* is *Ranunculus Flammula*, while the *Daisies* of our English meadows are replaced by *Alchemilla vulgaris*, *A. alpina*, etc.

In the late Mr. Gardiner's 'Botanical Rambles in Braemar,' printed in 1845, he tells us that "round the old Castle of Braemar sheep and lambs were browsing among the myriads of Buttercups and Daisies that gemmed the meadows," etc. QUIS JUDICABIT?

BROOKLIME, BUCKBEAN, ETC.

In the 28th No. of the 'Phytologist,' inquiry is made, "What is the term Brooklime derived from?" Probably a typographical error in some of the old herbals, where it was more properly called Brookling, inhabiting the brook, or Brookline, lining the brook, terms much more significant.

In the same number inquiry is made, "Why is *Menyanthes trifolia* called Buckbean?" This is likewise a typographical error. Bogbean is a proper appellation which is occasionally used: in bogs it grows in many places plentfully; but in shallow ponds of water it arrives to the greatest perfection, and when in bloom presents a very beautiful spectacle. It would be to botanists a great boon if all our British plants were in English as significantly named. Bogbean in its foliage much resembles the cultivated Bean. It is much used at present as a stomachic, and was once, before hops were introduced, used to make ale bitter.

BROOKLIME.

A correspondent, p. 192, vol. ii., asks what Brooklime is derived from. Probably *brook*, where the plant grows, and Dan. *lijm*, or line, from A. S. *gliman*, glue, a name applied to certain plants, as the Mistletoe, Holly, etc., from which birdlime (*fugle lijm*) was obtained.

MUSTARD.

In the 29th No. inquiry is made, "What is the word 'mustard' derived from?" In Chambers' Cyclopædia the following account may be found:—"Mustard, a preparation of a seed of that name, ground or beaten up with vinegar or the must of wine, whence its name." When the Mustard-plant, for its seed, was extensively cultivated in almost every garden, vinegar or the juice of the crab (verjuice) was used in preparing it for use; great quantities were consumed as a condiment when little else besides salted meats were used during the winter months and a portion of the summer also. It was likewise considered as an antiscorbutic.

The Mustard-plant was first introduced from the Continent, but is now fully naturalized here. On the banks of the river Severn it springs annually in abundance; the seeds retain their vitality in the earth for many years.

The *Anacharis Alsinastrum* has now made its appearance in the river Severn, in and about Bewdley, and is rapidly increasing. G. J.

PORTABILITY IN MANUALS OF BRITISH BOTANY.

In the review of the new 'Field Book,' by Mr. Childs, in the July number of this Journal, there are some remarks on the portability of that work. Now it has frequently occurred to me, that however desirable large margins may be in other works, in botanical field-books they are quite misplaced: accordingly, acting upon this idea, I have had my Babington's 'Manual' (the *thick*-paper copy) cut down, and bound in thin leather, and it makes a very nice portable volume, 6¼ inches by 4 inches, and not quite 1 inch thick. If the *thin*-paper copy were to be treated in a similar manner, it would be of the same size, and just ¾ inch thick, leaving little to be desired on the score of portability; and I do not think that any one possessing the Manual, and trying the experiment upon it, would regret having done so. Some may be inclined to think these remarks wholly unimportant and trivial, but I believe that many will be of opinion that anything which may conduce to the comfort and convenience of the botanist in his ramble of twenty or thirty miles a day is not to be lightly disregarded. G. H., *Birmingham.*

STARCH, FROM HORSECHESTNUT.

The following is from the 'Californian Farmer,' which some kind friend obligingly sent to the office of the 'Phytologist.'—"*A New Product for Starch.*—We call the attention of our starch-makers to the fact, and if it should prove of value, the 'Buckeye' of California is so abundant, we have another product now wasted that can be turned to good account. The Indians use these nuts as food, and we hope the trial will be made of their capability for starch."

TWIN MUSHROOMS.

Perhaps your correspondent W. F. may not be aware that an instance of Siamese-twin Mushrooms, like that he mentions in your last number, was exhibited at a meeting of the Botanical Society of Edinburgh, and was figured in the 'Annals of Natural History,' 2nd series, 9th vol., fol. xvi., page 435. A like explanation is there given as to how it came to pass. MAXWELL T. MASTERS.

SPECIMENS OF "THINGS NOT GENERALLY KNOWN."

Development of Plants and Identity of Species.—The Cowslip, Primrose, Oxlip, and Polyanthus, which were always regarded as distinct species, are now found to be producible from one set of seeds, under various conditions; they are radically one plant. So also the Clove Pink and Carnation are only varieties of a flower growing among the ruins of some of our old castles, the *Dianthus Caryophyllus.* The Artichoke of the garden, and the Cardoon (a kind of Thistle) of the South American wild, are held as distinct species in all botanical works; yet the Artichoke, in neglect, degenerates into the Cardoon. The *Ranunculus aquatilis* and the *Ranunculus hederaceus* are, in like manner, set down as distinct species; but behold the secret of their difference! While the former plant remains in the water, its leaves are all finely cut, and have their divisions hairy; but when the stems reach the surface, the leaves developed in the atmosphere are widened, rounded, and simply lobed. Should the seeds of this water-plant fall upon a soil merely moist, without being inundated, the result is the *Ranunculus hederaceus*—the presumed distinct species—with short stalks, and none of the leaves divided into hairy cut-work! To come to a more familiar instance. The various bread-forming grains, Wheat, Barley, Oats, Rye, are found to be resolvable into one. If Wheat be sown in June, and mown down, so as not to be allowed to come to ear till the next season, the product will be found to consist partly of Rye, or some other of the cereals. Oats have, in like manner, been transformed into Rye, Barley, and even Wheat. Till a recent period this phenomenon was doubted; but it has been tested by experiment, and reported on by so many credible persons, that it can no longer be rejected.—*From a Correspondent.*

MOUNTAIN ASH (*Pyrus Aucuparia*).

This tree is seldom described by any author unaccompanied by a more or less uninteresting account of superstitious usages respecting it; for example, Lightfoot, in his 'Flora Scotica,' Smith, in his 'English Flora, and Hooker, in his 'British Flora,' give publicity to these somewhat degrading facts. In Loudon's Arboretum et Fruticetum Brit. there is a summary of what was written previously to the publication of this elaborate work. None of these relations is it needful to repeat. We had experience in our youth of the prevalence of this superstition, and of many other similar anilities; but it is perhaps better to let them remain in oblivion.

We have heard that the Cambro-Britons brew a strong drink from the berries of the tree, and it generally produces them in abundance. We should be obliged to any correspondent who will be so kind as to tell us how a fruit which in the south of England is deemed poisonous, can be made useful. We know by experience that it is *not* poisonous, and we further believe that a very wholesome preserve might be made by boiling the ripe berries in a sufficient quantity of sugar. That the fruit is good can be affirmed on the *crede experto* principle; but we cannot say how it may be most usefully and economically employed.

QUERCUS INTERMEDIA.

NOTE.—A correspondent writes, "In the last London Catalogue (last edition), it, *Quercus intermedia*, is considered a variety. In this Catalogue is (are) many discrepancies, much too full of varieties. But it is not for me to criticize."

Communications have been received from

Fred. Currey, F.L.S.; J. G. Baker; H. Stock; J. Matthew, jun.; W. Borrer, F.R.S.; G. E. S.; Frugilegus; John Windsor, F.L.S.; A. G. More, F.L.S.

BOOKS RECEIVED FOR REVIEW.

Natural History Review for April, 1858.
The Friend.

ERRATA IN 'BRITISH BOTANY.'

Page 206, **Rosa villosa**, after E.B. 583. Sup., *add* "excluding syn. and fruit." Under var. *mollis*, E.B. 459 *should be* E.B. 2459.

NOTES ON THE FLORA OF THE HIGH PEAK.

The matter of this paper is collected from memoranda hastily jotted down in my note-book, during the intervals between heavy showers, whilst on a pedestrian tour in the neighbourhood of the Peak, on the 23rd and 24th May, this year, and I must plead this as an excuse for the many imperfections which it must necessarily contain, and which I hope the reader will treat with lenience. Crossing the moors from Glossop to Castleton, we found very little to interest us except the wildness of the landscape, with here and there, in the deep recesses of the valleys and gorges, little oases of great beauty, which would furnish to the glowing canvas of the artist many an enchanting subject. The Flora exhibited nothing rare; the common heath-plants only were to be found, as *Luzula campestris, Vaccinium Myrtillus, V. Oxycoccos, Juncus glomeratus, Sphagnum fimbriatum,* with many others of a similar character, and, of course, *Calluna vulgaris, Erica cinerea,* and *E. Tetralix.* On reaching the clean little village of Castleton, embowered amongst the hills, better success awaited us. Here of course our first point was to visit Peveril Castle, immortalized by Sir Walter Scott. This mouldering ruin of ancient glory frowns in stern magnificence on the summit of a small but difficultly accessible hill, on which we found *Lychnis diurna* and *Saxifraga granulata* in abundance. The decaying limestone of which the castle is built has furnished a rich bed and locality for several plants which grow principally on the Limestone formation, as *Saxifraga tridactylites, S. hypnoides, Draba verna,* and *D. muralis,* which are sufficiently plentiful to afford a good supply of duplicates. *Geranium molle, G. robertianum,* and *Stellaria Holostea,* although common plants, yet, in the mingling of the various tints and colours, add greatly to the beauty of the foreground scene.

Descending the hill, we arrive at the mouth of the Peak Cavern, which will amply repay a visit; and we should recommend the botanist for the nonce to lay down his vasculum at the entrance, and follow the steps of the guide to a distance underground of 2400 feet, and he will not regret the change: we did not. It was here that one of those pleasing incidents occurred which always contribute much to the enjoyment of a botanical pedestrian trip. I refer to the meeting, on the side of the rock, with another botanist, and exchanging specimens and addresses with him.

On this hill there is abundance of *Chrysosplenium oppositifolium, Lychnis diurna,* several species of *Saxifraga,* and the rare *Valerianella carinata.* The limestone walls which skirt the road from this place to Chapel-le-Frith are richly decked with *Saxifraga tridactylites* and *Draba muralis.* Ascending another hill toward the entrance of the Blue John mine, and close to Mam Tor, we gathered *Cochlearia officinalis, Arabis stricta* (?), *Adoxa moschatellina* and *Primula veris.* In a small stream near the summit *Chrysosplenium oppositifolium* is plentiful, with several patches here and there of the rarer *C. alternifolium* and *Veronica Beccabunga.* By the way, that name always strikes upon my ear with a grating sound: is it not a barbarous name for so pretty a plant? Had I been at the elbow of the great Linnæus when he wrote it, I should humbly have suggested *V. rivularis* as a more appropriate and certainly more euphonious name.

Upon regaining the high-road to the south of Mam Tor, the fields are brilliant with *Viola canina* and *V. lutea,* and in the woods *Geum rivale* is abundant, whilst not a plant of *G. urbanum* is to be seen. The ditches at the foot of the walls are luxuriant with *Veronica serpyllifolia, V. Beccabunga* (in leaf only), *Equisetum limosum,* with the variety named at p. 171 of Irvine's 'British Plants' *E. fluviatile,* and on the drier portions occasional patches of *Asplenium Trichomanes.* On the banks of the stream, to the west of Chapel, we found a species of *Petasites* in seed, which, from specimens gathered near Huddersfield, I take to be *P. albus,* Gærtn., mentioned in the supplement to Baines's 'Flora of Yorkshire,' by Mr. P. Inchbold, of Storthes Hall; and at the next bend in the road *Orchis mascula* was in full flower in a meadow on the left-hand. In concluding this very imperfect sketch of the Flora of this district, permit me to observe, that had the season been more advanced and the weather more favourable, I doubt not that a much richer collection would have awaited us, and I can confidently recommend the district to any ardent student of our enchanting science who is not afraid to make use of Nature's own conveyance, and "do it afoot."

FIFESHIRE MOSSES.

By CHARLES HOWIE.

Phascum cuspidatum, Schreb. On cultivated fields and sandy soil by the sea, as at St. Andrews.—The var. *piliferum* is found.

Phascum subulatum, L. On damp grass-fields; common.

Gymnostomum squarrosum. In damp grass-fields south of Craghall Den, Ceres.

Gymnostomum microstomum, Hedw. On banks, under hedges, Grange Road, St. Andrews, and near Boarhills, etc.

Weissia controversa, Hedw. On sandy banks; common.

Weissia crispula, Hedw. In Kerrick's Den, by Boarhills, on the face of a sandstone rock; in a den above Falkland.

Weissia verticillata, Brid. Under dripping rocks on the east seacoast; Kenly and Dura Dens, under similar circumstances; fruiting freely.

Blindia acuta, Br. and Sch. On the East Lommonds; in fruit.

Cynodontium Brontonii, Br. and Sch. On the face of rocks, Craghead, below Fawfield. On rocks, Rossie; and above Newburgh.

Dicranum pellucidum, Hedw. On the rocks that form the watercourses of dens, as at Ceres, Kenly, etc.; it fruits freely.

Dicranum squarrosum, Schrad. On the west of the county, common; on the east, more sparingly distributed. Falkland Hill, Lommonds, Mount Hill, Norman Law, Kenly Den, etc.

Dicranum varium, Hedw. On wet banks and grass-fields; common.

Dicranum rufescens, Turn. On wet ground, from Ceres to Cupar, east seacoast, etc.

Dicranum cerviculatum, Hedw. On peat soil after being broken up, on Bankhead Moss, etc.; common.

Dicranum heteromallum, Hedw. On moist peat soil; common over the county.

Dicranum scottianum, Turn. On a sandstone rock, Kerrick's Den, and on several places over the centre of the county.

Dicranum fuscescens, Turn. On the north side of the summit of Drumcarro Crag, in fruit (associated with *Pogonatum alpinum*).

Dicranum scoparium, Hedw. Of very common occurrence over the county.

Dicranum palustre, Bridel. On the Lommonds; fruiting freely.

Dicranum majus, Turn. In a den above Falkland, abundant; Mount Hill, etc.

Leucobryum glaucum, Hamp. On Tent's Muirs, Drumcarro Crag, etc.; common.

Ceratodon purpureus, Bridel. On Tent's Muirs, etc.; one of our commonest plants.

Campylopus flexuosus, Dill. On a muir by Chester's Dunino. On the east seacoast under rocks.

Campylopus longipilus, Bridel. On the Lommonds.

Pottia truncata, Br. and Sch. On cultivated ground; common.

Pottia Heimii, Br. and Sch. By the margin of the sea, Fifeness, Elie, St. Andrews, etc.

Anacalypta lanceolata, Kohl. On the seacoast east of Crail.

Distichium capillaceum, Br. and Sch. On the south-east corner of Tent's Muirs; sparingly.

Distichium inclinatum, Br. and Sch. On the Tent's Muirs, associated with *Catiscopium nigritum*.

Didymodon rubellus, Br. and Sch. On Tent's Muirs; abundant.

Trichostomum tophaceum, Bridel. On Mount Hill, by Cupar, Dura Den, east seacoast, etc.

Trichostomum rigidulum, Smith. On wet rocks, in an old quarry, Aroncroach. On rocks, Kiness Burn, St. Andrews.—Var. *β*, on a large boulder, west of Drumcarro Crag.

Trichostomum flexicaule, Br. and Sch. On St. Andrew's Links, Tent's Muirs, and generally met with over the county.

Tortula unguiculata, Hedw. Common over the county.

Tortula fallax, Hedw. On the limestone districts, as about Ceres; common.

Tortula vinealis, Bridel. On the south-east corner of Tent's Muirs; in fruit.

Tortula tortuosa. On the Lommonds and Normand Law; barren.

Tortula muralis. On walls; common.

Tortula lævipila. Upon old walls by Kilrenny and St. Andrews.

Tortula ruralis, Hedw. On the sand-hills and banks of the seacoast; in fruit.

BUCKBEAN AND BUCKWHEAT.

Your correspondent "Etymologus" has thrown some light upon the derivation of Buckbean and Buckwheat, but it appears to me that the prefix *Buck* has *two* meanings. First, with regard to *Buck*-bean, we may observe that *bach*, in German, is a brook. *Beck*, in English, a brook or small stream, and *buck*, are derived from the German *bauche*, or *bach*. *Buck* means a liquor in which clothes are soaked for washing; and we have also, derived from the same root, *buck*-basket, a basket in which clothes are carried to the wash, or to be washed, or soaked for washing; *bucking*, the act or process of soaking; *bucking*-stool, a washing-block, or a stool on which tubs containing the soaked clothes stand; *bucket*, a vessel which holds water, or to draw water in, etc. The word *buck* here prefixed has one and the same *meaning*, and refers to *water*. The Buckbean may therefore have been named from the *place* of its *growth*, namely, boggy, *wet* ground, or ground *soaked* with water, or *bucked*, as it is called in some parts of England.

Now, as to Buckwheat, for the meaning and derivation of which we must look to other words having a similar prefix, such as *Buck*-mast, *Buckram*, *Buckthorn*, and words such as *buck*, the male of the deer, rabbit, etc.; *Buckler*, *Bucklerthorn*, *Buckrams*, the same as wild Garlick, etc. It will be seen that all these words have a meaning indicating power or strength either in *material*, *property*, or *nature*. There is a powerful *nutritive property* in the Buckwheat, also in the Buckmast; in the Buckthorn there is a powerful *cathartic* property, and the plant is accordingly called *Rhamnus catharticus*, or Purging Buckthorn. The male of the deer and rabbit is proverbially strong, and sometimes used to express a strong, active fellow, and the word *buck* is also applied to the stiff *young gent* who makes himself conspicuous. The Buckrams, or wild Garlick, every one will admit is strong enough in odour, as are all plants of this family, and chemists tell us they contain a very powerful property called *sulphuret of allyle*.

I think the above observations confirm the remark made by the editor of the 'Phytologist' in a late number, namely, that the common names of our plants were given by our ancestors, whether of the Celtic, Saxon, or Roman stock, in consequence of some property or utility they possessed. S. B.

HISTORY OF THE HOUSELEEK.

One of the few plants described and named by the ancients, and satisfactorily identified by modern botanists, is the *Houseleek.* A popular and still well-known work, 'The Journal of a Naturalist,' gives the following rather whimsical origin of the vulgar nomenclature of plants. He is good enough to inform his readers that "modern science has been pleased to wrap up the meaning of its epithets"—in plain English, the names of plants—"in Greek or Latin terms, but in very many cases they are the mere translations of the despised old vulgar names."

The history of the Houseleek will convince the reader that in this instance at least, and a hundred might be produced, the common or *vulgar* name, as the lively author expresses it, is an exact translation of the name by which the plant was known among the Greeks and Romans.

The Houseleek appears to have been first noticed or named or published by Hippocrates, who calls it *κρινανθεμον το επι των οικων φυομενον,* or the "liliaceous flower growing on houses." Theophrastus, the earliest writer on plants, describes the same under the name *αειζωον,* or *Everlasting* or *Everliving* (Theoph. i. 7, 14). Dioscorides, the contemporary of Pliny, calls it *αειζωον το μεγα,* or *the great Everlasting.* Pliny, in the twenty-fifth book of his Natural History, writes that "there are two kinds of Aizoon, the greater and the less. The former," he continues, "some authors call Hypogeson (*ὑπογεισον*), because it grows on roofs, gutters, and on walls of houses." Op. Aurelius states that it is sown on tiles (*tegulis*), and for this reason, viz. that in some places there is an opinion that the building whereon it grows will be saved from lightning,—"plebis animos invaserit opinio non feriri fulmine domum in cujus tegulis Sedum (*Houseleek*) vireat." From this fact the origin of the other Latin name by which the plant was known in the Middle Ages is easily traced. In the Greek and Latin mythology *Jupiter* is styled the Thunderer (*Jupiter tonans*), and this mystical or mythological plant was called *barba Jovis* in medieval latinity. But there is another reason why the Houseleek bears the name of Jove's-beard, or *Joubarbe,* as it is popularly styled in France to this day. The term 'thunder' was derived from *Thor,* the thunder-god of our Teutonic ancestors (as the thing itself was believed to proceed from him); hence the name of our fifth day of the week, Thursday (Thorsdag); and when the northern nations of Europe embraced Christianity in the ninth, tenth, and eleventh centuries, the religion and mythology of *Thor, Woden, Friga,* etc., gave way to a purer faith and to an equally objectionable mythology. *Jupiter* took the place of *Thor*, *Mercury* of *Woden,* and *Venus* or the Virgin Mary of *Friga,* and the ancient Teutonic name of Houseleek (probably *Thorsbart*) was converted into Jupiter's-beard. But our plant has a series of genuine popular or common names. Those above quoted, from Pliny's time to the epoch of Isidore and the medieval glossologists, are all names conferred on the plant by the literati, the learned of those remote times.

The name given to the Houseleek by Hippocrates, the father of physicians, is a popular name, and, literally translated, means "the lily-flower which grows on houses." This was the habitat of the plant two thousand three hundred and twenty years ago. In Sibthorp's time, who visited Greece about the end of the last century, it was observed growing on roofs, as in the days of Hippocrates. It was long, however, before this accidental property of the plant, its locality, was taken into the scientific nomenclature. Theophrastus's name, also adopted by Dioscorides and Pliny with a slight modification, is also a popular name, or was a popular name in Greece. It expressed a quality of the plant which the unlearned could apprehend. Pliny's modification, *αιζοον,* is derived from *αει,* always (in Latin *semper*), and *ζωος*, living,—from *ζαω* or *ζῶ*, I live. Dr. Billerbeck, the learned author of the 'Flora Classica,' p. 114, writes, "Das Wort *αειζωον* leitet man vom *αειθαλες των φυλλων,* wesshalb Gaza es durch *sempervivum* gegeben hat." Gaza, a grammarian and translator of the fifteenth century, first gave the Linnæan generic name *Sempervivum* to this plant. His etymology is not so satisfactory as his translation: the Greek word *αειθαλες* is not *sempervivus,* always living,—but rather *semper viridis* or *sempervirens,* always green, evergreen. *Sempervivum* and *Aizoon* are both expressive and popular names, not indeed among us or among the Teutonic races, the great Germanic family, but among the Greeks and the Latins, where they originated, and to whom they explicitly declared one of the prominent properties of the plant, its ever-during vitality.

This name Linnæus selected for the genus, and the Latin *tectorum,* 'of the roofs,'—the equivalent of επι των οικων of Hippocrates,—he gave as its specific or trivial name.

Our ancestors of the ancient Gothic stock appear to have formed a name for this on similar principles, viz. from accidental or specific qualities of the plant, or from some superstitious virtue which they supposed to be resident in it. In the Westphalian Glossary, a MS. originally composed or written or copied from a *hoch-deutsch* (High German) original at a very early period in the Middle Ages, and published by F. J. Mone in his 'Quellen und Forschungen zur Geschichte der teutschen Litteratur und Sprache,' we find Houseleek is *Husloeck.* Its orthography varies, for in the same copy *Huesloek* and *Husloch* both appear.

In the Meder Maas Glossary, published in the same collection, we read *Hüs-loech.* In modern Danish the name of Houseleek is *Hus-lög; Lög,* in Danish, is Leek in English. In this compound word Houseleek there are two characters of the plant expressed, an accidental and a specific character. As the scientific generic term *Sempervivum* adopted by Linnæus expresses the nature of the plant, viz. its being perennial or everlasting or everliving, and as the specific name *tectorum* signifies an accidental character, viz. its locality *on roofs,* so the term *leek* expresses an essential quality of the plant, viz. its being evergreen, while *house* implies, like *tectorum,* its usual *habitat* or place of growth. The Houseleek is known in Germany by the German equivalent *Hauslauch,* and it has in that country the names *Hauswurz* and *Hauslaub,* or *Housewort* and *Houseleaf.* In the Swedish it is *Tag-lök,* or *Roof-leek; tag* is an exact translation of *tectorum.* In Anglo-Saxon the name is *Ham-wyrt, Home-* or *House-wort.*

There is no difficulty in the application of the term *leek* to this species. In the first place it is an evergreen, as Leeks are;

and in the second it was, or some similar plant was, used as a condiment. One of the *Sedums,* viz. *S. acre,* is named to this day, in Germany, Wall-Pepper. *Sedum* was formerly one of the synonyms of Houseleek. The Houseleek was so called because it was always *as green as a Leek,* and also because it or some of its congeners (relatives) were used as condiments.

We have still another series of synonyms to compare and consider. It has been already stated that Houseleek bore also the more formidable name of *Barba Jovis* or *Herba Jovis ;* for it is possible that the former may be a corruption of the latter of these two expressions. In the Westphalian Glossary, already quoted, *Donderloek* appears as a synonym or equivalent of Houseleek. Also, in Bosworth's Anglo-Saxon Dictionary, we find *Thunor-wyrt, Tonitrui herba, Sedum majus, Barba Jovis,* all explanatory of the Anglo-Saxon name of the plant, *Hamwyrt.* The term *Thunderwort* implies its supposed efficacy in preserving the house or building whereon it grew from the terrible consequences of thunder; and it appears that this belief or superstition descended from ancient times through the middle ages, and is perpetuated in the modern names of the plant. Among the Latins the Houseleek was dedicated to *Jupiter,* the god of thunder. The Teutonic nations, who worshipped *Thor,* also consecrated this to his honour, and doubtless believed that they and their habitations were safe while they dwelt under *Thor's* beard.

Arnoldus Villa Nova, who wrote a treatise on herbs in the fifteenth century, informs us that "*Semperviva* (the Latin name of Houseleek) est herba sic dicta quia semper viridis. Nascitur in locis ædificatis ex lateribus: quidam faciunt eam nasci in domibus suis supra tectum." Turner, who wrote his treatise on herbs in the sixteenth century, says, "Houseleek hath the name of *Sempervivum* in Latin and of *Aeizoon* in Greek, wherefore me thynketh that *ayegreene,* as I said before, is a better name for it than *singreene.*" This opinion of Master Turner's is quoted, not to show that he was a greater botanist than an etymologist, but rather to introduce another synonym of the plant, a name descriptive of one of its most prominent qualities, *ayegreene* (or 'always green'), as a correct rendering of *semperviridis:* it does not exactly convey the full sense of *sempervivum,* or *semperviva,* as Arnoldus writes it. But we have already seen that a famous modern scholar and botanist, Billerbeck, in his 'Flora Classica,' derives the Greek *αειζωον* from *αει* and *θαλλος,* ever green, instead of from *αει* and *ζωον,* ever living; hence the term *singreen* or *ayegreen* is not a very inadequate representative of the plant in the Germanic series of languages. The prefix *sin* appears in the Gothic version of the Gospel by Mark, v. 5: "Sinteino thans unledans habaith mith izuis, ith mik ni sinteino habaith,"—"Ye have the poor always (*sinteino*) with you, but me ye have not always (*sinteino*)." In the ancient German glossaries, *sin* is given as the Teutonic equivalent of the Latin *semper* or the Greek *αει,* and is expressive of the perennial or lasting duration of the plant. *Sengreen* is just the same as *ayegreen* or *evergreen.* Many other plants besides the Houseleek bore this name, because they were always green. Bailey says *Sengreen* is the herb Houseleek, and and the herbalists both of ancient and modern times give all the English synonyms *Ayegreen,* or Houseleek, or *Sengreen.* When Linnæus reformed the nomenclature of botany, he selected *Sempervivum,* and rejected *Crassula* and *Sedum,* which were synonyms in former times, and invented the specific name *tectorum* to distinguish this kind of Houseleek from other species.

In latter times, during the last twenty or thirty years, an opinion has been gaining ground, especially among the younger and more critical botanists, that the Houseleek is not a native of Britain, and consequently is also an introduced plant in the northern parts of Europe generally. In support of this view it is urged that it is found only on walls, that it scarcely propagates itself, or in other words, it is found only on artificial erections, and is never, so far as we know, of spontaneous growth on these. By these two botanical canons the Houseleek is excluded from the native Flora of the British Isles. It is believed by the compiler of these linguistic notes on the history of the plant, that by the same rules it must be banished from the Floras of Europe from the 45th to the 49th degrees of latitude.

The plant must have a native country; it may have more than one. It may be a cosmopolite. The learned editor of the 'Gardeners' Chronicle' tells us that it is certainly most strange that the fatherland of so many of our best-known cultivated plants should thus defy detection in their native haunts. Thus *Reseda odorata,* the fragrant Mignionette, was long believed to be an Egyptian plant, or a native of the north of Africa; but the researches of botanists to detect it in any of these countries have hitherto been unsuccessful.* Our finest garden-flowers, our Pinks, Carnations, Stocks, Wallflowers, are in the same predicament; they are vegetable vagabonds or bastards, disowned by all nations as genuine natives; nobody knows whence they have descended. The Houseleek may be among the number, but instead of stigmatizing our most useful productions, that supply us with the staff of life, with agreeable concomitants to our more solid dietetic dishes, also with condiments, sauces, stuffings, relishes, etc., I would call all such plants cosmopolitans,—plants which, like domestic animals, cannot exist but under the protection of man. From Norway to Greece, a range of about thirty degrees, the Houseleek grows on walls. In the island of Gothland Linnæus mentions the plant as common on walls; and Sibthorp found it on similar places in Constantinople. Some plants are both mural and rupestral, or grow both on walls and rocks. The testimony of botanists is uniform, viz. that the Houseleek grows exclusively on walls; if ever produced on rocks, such examples are to be considered as exceptional cases. It is impracticable to discuss the question raised about the spontaneity of the Houseleek. It is often planted: so are undoubted natives. It grows on walls and roofs: but walls and roofs, or some shelter, have existed ever since the existence of the human family, or soon after the existence of the Vegetable Kingdom itself. Its name appears in all the earlier glossaries of Europe, both of the south and the north. In the 'Promptorium Parvulorum,' an English-Latin dictionary of the fifteenth century, one of the very earliest collections of English words, the Houseleek is noticed thus, "Howslek herbe or sengrene, *barba Jovis, semperviva, joubarbium;*" and as it occurs in Bosworth it has been known here ever since the Anglo-Saxon times, or for a period of a dozen centuries. If it is to be still deemed an alien, it may be asked, Should a plant have a probation of more than twelve centuries before it can claim the privilege of a place as a subject in the kingdom of Flora? If it be an introduction, it was probably introduced by the Romans, and may have obtained its name of Houseleek from the ancient Britons, who gave it this title to distinguish it from that well-known savoury plant which is the chief ingredient in leek-porridge.

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* The rich Oriental collections of Boissier contain no trace of our common Mignionette, *Reseda odorata*, collected in a wild state. His words are as follows: "It is reported to grow wild in the sandy regions near Mascar, in Algeria, according to Desfontaines, but no modern traveller has been able to find it there: in Egypt, as is stated by Haller, Linnæus, and others; but neither Forskahl, nor Delile, nor any more recent observer has found it there; and all plants resembling it from that country, as far as we know, belong to either *R. macrosperma* or *R. arabica*. Delile mentions Syria, but I have not seen it from that country."

HERTS FLORA.

Additions to the above Work, chiefly during the year 1857. *By the* REV. R. H. WEBB, Rector of Essendon, Herts, PROFESSOR BENTLEY, *and other correspondents.*

Note.—An asterisk (*) prefixed to the *plant* shows that it is new to the Flora,—to the *district*, that it is new to the same. The mark (!) following the *station* signifies that the plant has been seen *growing*,—following the *authority*, that a gathered *specimen* has been seen sent by the same.

p. 2. *Anemone Pulsatilla.* 11. On the slopes opposite Beacon Hill, on the right-hand side of the road to Hexton, very abundant: R. B.

p. 10. *Delphinium Consolida.* 11. Field near Grove Mill, half a mile from Hitchin; field near the Obelisk, Hitchin Hill: R. B.

p. 11. *Berberis vulgaris.* 11. Green lane near Charlton, by Hitchin Park; Vicarage Grove, near Ippolitts: R. B.

p. 14. *Papaver hybridum.* 11. Very abundant, in 1854, in fields near Mount Pleasant, Hitchin; also near Oughton Head: R. B. With *P. Argemone* and *dubium.*

p. 15. *Papaver somniferum.* *11. Field near Bearton Green, 1851; Willbury Hills, 1857: R. B.

p. 17. *Fumaria micrantha.* 11. Very abundant in fields near and about Pirton Cross, in 1856; in fields near the Willows; and near Charlton and Well Head; also near Offley Holes: R. B.

p. 17. **Fumaria parviflora.* 11. In two fields near Pirton Cross: also near Lilley Hoo, towards Barton: R. B.

p. 25. *Iberis amara.* 11. Lane leading from Pirton towards Highdown, 1851; field between Hexton road and Highdown, 1853, also in 1857: R. B.

p. 26. **Hesperis matronalis.* †6. Close to the Barnet Station! L. P.

p. 27. *Erysimum cheiranthoides.* *11. In a field near the

Folly, Hitchin, 1857; near Wain Wood; near Mount Pleasant, 1854; near Walsworth, 1857; near Bolton Farm; near Gosmore. The plant is becoming frequent in the neighbourhood of Hitchin: R. B.

p. 28. *Coronopus didyma.* 11. Sand-pits near the Cemetery at Hitchin, 1852: R. B.

Suppl. 1851, p. 6. *Viola sylvatica,* var. *γ. canina.* *11. Near Wain Wood: R. B.

p. 41. *Silene noctiflora.* 4. About Westmill: L. S.! 11. In field by Wain Wood, near the path leading from Patmoor Hills to Preston, 1851; in two fields near where the railway crosses the road leading from Hitchin to Great Wymondley: R. B.

p. 41. *Lychnis diurna.* 11. Near Ickleford Common, but probably an escape from a garden; in Mount Pleasant plentiful, and undoubtedly wild: R. B.

p. 43. *Spergula arvensis.* *11. Willbury Hills, plentiful, 1853 and 1854; in a field near the Nine Springs; in fields on the right-hand side of the lane leading from Ippolitts to Gosmore, 1854 and 1857; field near Thistley Farm; also in a field near Offley Holes, abundant: R. B.

p. 47. *Cerastium aquaticum.* 4. Coles: L. S.! 11. Ickleford; near Grove Mill; near Purwell Hill; Dimead, near Almshoebury: R. B.

p. 51. **Hypericum montanum.* 11. Single specimen in a field by Pirton Cross, in 1854, "but I have searched in vain for it since:" R. B.

p. 53. *Geranium phæum.* 1. In a hedge at Essendon West End, 1857: J. C.! 2. In the Avenue at Welwyn Rectory: Sir B. W. B.

p. 64. *Medicago sativa.* 11. Near Walsworth and other places: R. B.

p. 65. *Melilotus arvensis.* 11. Near the railway-bridge, Walsworth Common, 1851; spontaneously, in a garden at Hitchin, 1853; Willbury Hills; near Ickleford; near Baldock; near Highdown: R. B.

p. 67. *Trifolium pratense,* var. *parviflorum.* 11. In a field near Pirton Cross: R. B.

p. 73. Insert **Vicia Bobartii.* 7. Railway-bank near Welham Green!: Mrs. Church.

p. 73. *Ervum tetraspermum.* *2. Cornfields near Pickett's

Hill; ditto skirting Dowdwell's Wood, Ayott St. Peter's: E. E. 11. Near Minsden Chapel: R. B.

p. 75. *Lathyrus Aphaca.* 1. By the footpath from Holwell Farm to Letty Green! 1857: J. C.

p. 75. *Lathyrus Nissolii* (*Nissolia*). 1. By the footpath from Holwell Farm to Letty Green! 1857: J. C.

p. 77. *Prunus domestica.* *11. Near Preston; near the lane leading to Offley Holes: R. B.

p. 78. *Prunus Cerasus.* 11. Field near Hitchin Common; also near the brook, about half a mile from the Folly at Hitchin; near Highdown; Trunk's Wood: R. B.

p. 90. *Rosa micrantha.* 11. Near Offley Holes: R. B.

p. 96. *Epilobium angustifolium.* 11. In a plantation at Highdown; near Charlton: R. B.

p. 100. *Myriophyllum verticillatum.* *11. Cadwell Common: R. B.

p. 101. *Hippuris vulgaris.* 11. Cadwell: R. B.

p. 103. *Lythrum Salicaria,* var. *canescens.* 11. Willbury Hills: R. B.

p. 107. *Sedum Telephium.* 11. Near the Nine Springs; in several fields about Preston; near Hitchin Wood; near Gosmore.—*S. purpureum,* field near the Folly, Hitchin; Trunk's Wood: R. B.

p. 116. *Helosciadium repens,* *11. Cadwell Common: R. B.

p. 139. Insert **Galium anglicum.* 1. Old wall of Brockett Park, above Lemsford Mills, 1854, 5, 6: E. E.! 1857: R. H. W.!

p. 144. *Scabiosa Columbaria.* 11. Near Much Wymondley; Wain Wood; Lilley Hoo; Offley Holes: R. B.

p. 147. *Centaurea solstitialis.* 10. Sandridgebury Farm fields, plentiful, 1857: E. E.!

p. 147. *Centaurea Calcitrapa.* *11. Bearton Green, near Hitchin, 1850: R. B.

p. 149. *Cnicus eriophorus.* 4. In an old chalk-pit at Aspenden, shown me by the Rev. A. P. Sanderson: L. S.! 11. Willbury Hill; near Letchworth, towards Baldock; also in a field near Letchworth Church: R. B.

p. 154. *Tragopogon pratensis.* 11. In a lane near Highdown, single plant, 1854: R. B.

p. 155. *Picris echioides.* 1. By the footpath from Holwell

Farm to Letty Green, 1857!: J. C. 11. Near Offley, abundant: R. B.

p. 156. *Lactuca virosa.* 11. Field near Purwell Mill, 1851; field near Ickleford: R. B.

p. 156. *Prenanthes muralis.* 1. Brockett Park wall, 1857.

p. 157. *Leontodon Taraxacum,* var. *lævigatum.* 11. Lane near Thistley Farm, also at Lilley Hoo: R. B.

p. 158. *Crepis biennis.* *11. Near Pirton, plentiful, 1856: R. B.

p. 158. *Sonchus oleraceus, β. glandulosus.* 11. Ickleford, etc.: R. B.

p. 167. *Chrysanthemum segetum.* 11. Frequent about Ippolitts; Little Wymondley, Offley, etc.: R. B.

p. 173. *Gnaphalium sylvaticum.* *11. Wain Wood: R. B.

p. 178. *Campanula Trachelium.* 4. Westmill: L. S. 11. Near Old Willbury Farm; near Highdown; near Hitchwood; Willbury Hills; Almshoebury; Pirton: R. B.

p. 179. *C. hybrida.* 11. Near Mount Pleasant, abundant; about Highdown; Willbury Hills; Offley Holes; Patmore Hills, etc.: R. B.

p. 185. *Vinca major.* *11. In a hedge at Patmore Green: R. B.

p. 185. *V. minor.* 1. Near the Lea, above Woolmers. 11. Plantation at Ippolitts, abundant: R. B.

p. 187. *Menyanthes trifoliata.* 11. Hitchin and Walsworth Commons; near Highbury, about a mile from Hitchin Church: R. B.

p. 187. *Chlora perfoliata.* 11. Chalk-pit up the Hexton road, about quarter of a mile beyond the entrance to Highdown; near Wellbury: R. B.

p. 188. *Gentiana germanica* (*? Amarella*). *11. Near Wellbury abundant: R. B.

p. 190. *Erythræa pulchella.* *11. Near Highdown: R. B.

p. 193. *Cuscuta Trifolii.* 1. Frequent in Clover about Essendon, 1857; near Grubb's Barn, 1857. 2. Between the Ayotts, 1857. *11. Field near the Nine Springs, in 1854, in abundance, with *Orobanche minor;* near Grove Mill, in abundance, also in 1854, not noticed since: R. B.

p. 195. *Myosotis cæspitosa.* 4. River Rib, Coles; pond at Wyddial: L. S.!

p. 195. Insert **Myosotis sylvatica.* 11. By a lane leading to Offley Holes, near Well Head: R. B.

p. 199. *Borago officinalis.* *2. Common about Marford: E. E. 11. Hitchin Hill, by the Obelisk, in 1853 and 1857; Pingley Wood, in abundance, 1854: R. B.

p. 199. **Cynoglossum sylvaticum.* 8. Cashiobury Park, near the Swiss Cottage, 1857: S. P.!

p. 202. *Hyoscyamus niger.* 4. Near Westmill: L. S.! 11. Near Hitchin Park, in the green lane leading to Patmoor Hills; Bearton Green: R. B.

p. 203. *Verbascum Lychnitis.* 1. Observed near Brockett Hall, 1857.

p. 204. *Verbascum nigrum.* 4. Munden: L. S. 11. Almshoebury; Dimead; Hitchin Hill; near Preston; Bearton Green, etc.: R. B.

p. 204. *Verbascum Blattaria.* *11. Near the site of an old garden, at Thistley Farm, near Gosmore, about a mile and a half from Hitchin: R. B.

p. 204. *Orobanche major.* 1. Amwell Bury, 1857: C. G. Thornton!

p. 204. *Orobanche elatior.* 11. In a field up Willbury Hills: R. B.

p. 205. *Orobanche minor.* 2. Near Stagenhoe: Mr. M. Balls, 1857. *11. Fields up the London road, near New England, in abundance, 1851; sparingly in 1853, also in 1857; field near the Nine Springs, in abundance, with *Cuscuta Trifolii,* in 1854; near Gosmore, 1857: R. B.

p. 207. *Antirrhinum majus.* 11. Near Bearton Green: R. B.

p. 208. *Antirrhinum Orontium.* 11. Near Ippolitts, 1854 and 1856: R. B.

p. 208. *Linaria Cymbalaria.* 1. On the Hatfield Park wall, near Mill Green, an apparently wild station.

p. 211 *Mimulus luteus.* 1. Banks of Maran, Reviss Water.

p. 212. *Melampyrum cristatum.* 11. Beech-tree Wood, Chisfield, in abundance, 1851; sparingly in 1853: R. B.

p. 214. Insert **Euphrasia gracilis.* 11. Lane near Thistley Farm: R. B.

p. 217. *Veronica polita.* *11. Field near Purwell Mill; near L. Wymondley; near the Folly, Hitchin: R. B.

p. 218. *Veronica Buxbaumii.* 11. Field on the right-hand side of the road leading from the top of Willbury Hill towards Norton Common; near the Priory Farm, L. Wymondley, in abundance, in 1853.

p. 219. *Mentha viridis* and *gentilis?* 4. Both growing with *M. sylvestris,* between Westmill and Aspenden : L. S.

p. 220. *Mentha aquatica* (*hirsuta*). 11. Common about Hitchin : R. B.

p. 219. *Mentha rotundifolia.* 1. Near the Bridge by Holwell Farm : J. C. ! Roadside near the Cowper Arms Inn, Hertingfordbury.

p. 220. *Mentha sativa* or *vulgaris.* *11. In several places about Hitchin; thus, Dimead; near Cadwell Common; M. Wymondley; Priory Farm, L. Wymondley; near Purwell Mill. How this plant has been overlooked I cannot understand : R. B.

p. 221. *Mentha rubra.* *11. In a ditch near New England, Hitchin : R. B.

p. 222. *Salvia verbenaca.* 11. On a bank near Mount Pleasant, in the road leading to Pirton : R. B.

p. 228. *Galeopsis versicolor.* 11. Border of Trunk's Wood, near Almshoebury Farm : R. B.

p. 231. *Ajuga Chamæpitys.* 11. In a field by Lilley Hoo, towards Barton, abundant; also near Offley : R. B.

p. 236. *Lysimachia vulgaris.* 1. Ditches in the mead above Holwell Farm : J. C. ! 1857.

p. 237. *Anagallis arvensis.* 11. With flesh-coloured flowers (*A. carnea,* Schrank), near Highdown ; also near Westmill, abundant : R. B.

p. 237. *Anagallis cœrulea.* 11. Near Highdown : R. B.

p. 239. *Plantago lanceolata,* var. *elata.* 11. Green Lane, near Charlton : R. B.

p. 240. *Chenopodium polyspermum.* 11. Near Almshoebury : R. B.

p. 242. *C. Bonus-Henricus.* 11. Norton Churchyard; near Grove Hill; near Hitchin Park; Graveley; Offley, abundant : R. B.

p. 243. *Atriplex patula.* 11. Near Grove Mill : R. B.

p. 243. *Atriplex erecta.* *3. Bennington : R. B.

p. 244. *Rumex pulcher.* 1. Hatfield Churchyard, 1857.

p. 244. *Rumex pratensis.* *2. Between Ayotpeen and Welwyn, 1857. *11. Near the Folly, Hitchin : R. B.

p. 245. *Rumex Hydrolapathum.* 11. Near Westmill; Cadwell Common : R. B.

p. 245. Insert **Rumex scutatus.* 11. Near Highbury, Hitchin : R. B.

p. 246. *Polygonum Fagopyrum.* 11. Field near the Folly; Willbury Hills: R. B.

p. 247. *Polygonum dumetorum.* 4. Near Westmill: L. S.

p. 247. *Polygonum Bistorta.* 1. Essendon West End, 1857: J. C.

p. 254. *Euphorbia Lathyris.* 11. Field near railway station, Hitchin, 1854 and 1856: R. B.

p. 263. *Populus canescens.* *11. By the side of the road leading from Hitchin to M. Wymondley, half a mile from the town: R. B.

p. 268. *Quercus sessiliflora.* 1. Near the Bridle Bridge, over the Lea, at Woolmers.

p. 274. *Lemna gibba.* 11. In a pond at Titmore Green; also in ditches and ponds at Cadwell Common: R. B.

p. 279. *Lemna polyrrhiza.* 11. Pond near Dimead, half a mile from Almshoebury Farm; also in the ponds and ditches at Cadwell Common: R. B.

p. 280. *Sparganium simplex.* 11. Once found near Westmill: R. B.

p. 283. *Triglochin palustre.* *2. Near the Folly, Wheathamstead: E. E.

p. 289. *Habernaria viridis.* 1. In the mead, near the Lea, above Essendon Mill, 1857.

p. 210. *Habernaria chlorantha.* 3. Quickswood Farm: H. Hardings.

p. 291. *Ophrys apifera.* 2. Bride Hall Farm, near Ayott St. Lawrence: E. E. Plentiful near Stagenhoe: M. B., 1857. 4. Coles: L. S.

p. 295. *Epipactis latifolia.* 6. Leggats: J. C. 11. Chisfield: R. B.

p. 298. *Iris fœtidissima.* 1. A second station, Essendon West End, 1857: J. C.

p. 325. *Phalaris canariensis.* *11. Near Well Head; near Bolton Farm, about a mile and a half from Hitchin: R. B.

p. 333. *Glyceria plicata.* *2. Meadows by the Lea, 1857.

p. 340. *Lolium temulentum.* *3. Cornfield, near Walkers: A. H.

p. 346. *Equisetum sylvaticum.* *11. I have a specimen in my herbarium which is recorded, "From Hitchin Common," and I have no doubt that it will be found there: R. B.

p. 346. *Equisetum limosum.* 11. Near Purwell Mill, etc.: R. B.

p. 347. *Ophioglossum vulgare.* 1. Abundant at Tewin Water.

p. 348. *Blechnum boreale.* 8. Aldenham Wood: S. P.

p. 349. *Asplenium Ruta-muraria.* 1. Brockett Park wall. 2. Old walls at Temple Dinsley: M. B., 1857! E. E.

p. 350. *Ceterach officinarum.* *11. On a garden-wall, at Graveley, abundant, and, I think, spontaneous: R. B.

p. 351. *Scolopendrium vulgare.* 11. Near Purwell Mill: R. B.

p. 352. *Aspidium lobatum.* 11. Lane leading from Thistley Farm to Hitch Wood, 1857; also at West Wood; also at the side of a copse near Offley, plentiful.—Var. *aculeatum.* 11. Brick-kiln Wood and Beech-wood, Chisfield; near Preston: R. B.

p. 353. *Aspidium angulare.* 11. Vicarage Grove, near Ippolitts; near Westwood: R. B.

p. 353. *Aspidium Oreopteris.* 8. Aldenham Wood: S. P.

p. 353. *Aspidium dilatatum.* 2. Waterend Marsh: E. E.

p. 354. *Aspidium spinulosum.* *8. Aldenham Wood: S. P. *11. Near Purwell Mill: R. B.

BIBLICAL BOTANY.

"A Reader of the Word" asks if *Prunus spinosa* grows in Palestine. I beg leave to refer him to the following passage in Lady Calcott's 'Scripture Herbal:'—"*Choach, Prunus sylvestris, Sloe, or Black-thorn, one of the commonest wild shrubs of Jewry,* is translated 'thickets' in the First Book of Samuel. In the Second Books of Kings and of Chronicles it is rendered 'thistles.' In one place of Job we find 'thistles,' in another 'covert,' for the same word; but in all the other texts, and they are not few, *Choach* is translated Thorns, and should be Black-thorn." I further find that in the marginal note of Bagster's Bible, to which your correspondent referred, there is this important addition in support of *Choach* being the *Prunus spinosa,* "*as the same word signifies in Arabic.*" In reference to the extract from Turner's 'Herbal,' which says that "*acantha* in Greek, and *spina* in Latin, signify a *thistle,* and *not thorn,*" I fear I must be so uncourteous as to ignore the authority of the 'Herbal' on the mere question of interpretation, and maintain the correctness of the present translation, "*thorns,*" in the parable of the Sower.

May I ask on what authority, and by what proofs sustained, the assertions in "Specimens of 'Things *not* generally known'" have been made? I fancy the title, 'Things not likely to be believed,' would answer better for the book from which, I suppose, your correspondent has given an extract. If we can once obtain a proof that wheat may be transmuted into rye, and oats into rye, barley, or wheat, the sooner systematic botany is knocked on the head the better. The proofs are palpable of the effects of cultivation on particular species, and of a confusion of species by hybridization; but I take the liberty of denying the possibility of one species being changed into another, much more of a change of genus, as the result of cultivation or want of cultivation. The first chapter of Genesis seems to me to settle the question, when it tells me, "God said, Let the earth bring forth grass, the herb *yielding seed*, and the fruit-tree *yielding fruit after his kind, whose seed is in itself*, upon the earth: and it was so. And the earth brought forth grass, and herb yielding seed *after his kind*, and the tree yielding fruit, whose seed was in itself, *after his kind*: and God saw that it was good." It is easy to make the assertion that "the Artichoke of the garden, in neglect, degenerates into the Cardoon (a kind of Thistle) of the South American wild;" but can any close observer of nature be found who can furnish proof of the alleged fact? On the contrary, the fact is that the Cardoon (*Cynara Cardunculus*) and the Artichoke (*C. Scolymus*)—both, I believe, natives of the Old World—are alike cultivated as vegetables, and equally distinct under cultivation as in their wild state. In proof of the existence of the Artichoke as a wild plant, I refer to the following passage in Lady Calcott's 'Scripture Herbal:'—"Among the thistles of Palestine is the Cynara, or Artichoke, which grows wild on Mount Tabor. It was brought to England in the time of Henry VIII., probably by his gardener, who was a French priest of the name of Wolf."

I do not suppose that your correspondent indorses the statement from 'Things *not* generally known,' but merely gives it as a "specimen" of what some of our pretentious little books, that profess to know something about everything, set forth for the instruction of the ignorant. W. M. HIND.

Bayswater, June 10, 1858.

THIRSK NATURAL HISTORY SOCIETY.

Botanical Exchange Club.

The monthly meeting of the Thirsk Natural History Society was held in the evening of Wednesday, the 3rd of June. Mr. W. Foggett, of Thirsk, was admitted as a resident member, and Miss Edmonds, of Brighton, and Mr. John Barton, of Christ's College, Cambridge, were duly enrolled as members of the Botanical Exchange Club.

Mr. J. G. Baker communicated the following notice relative to *Draba verna* :—

" M. Jordan maintains that *Draba verna* of authors, by some called *Erophila vulgaris*, is made up of several truly distinct species, and, in his ' Pugillus,' describes five of these, which I am going to enumerate, giving at the same time a condensed epitome of the diagnoses which he furnishes.

" 1. *E. brachycarpa*. Sepals ovate, hispid. Silicles half to a quarter as long as the upper pedicels, subelliptico-rotundate, rounded above, slightly narrowed below. Styles short, thin. Seeds pale, 16–20 in a cell. Leaves ovate-lanceolate, entire or subdentate, tolerably hairy. Habit of growth slender.

" 2. *E. glabrescens*. Sepals ovate, slightly hispid. Silicles fully half as long as the upper pedicels, oblong-elliptic, narrowed slightly at both ends. Styles short. Seeds 20–24 in a cell. Leaves intensely green, limb narrowed into a petiole which is usually as long as itself, glabrous or slightly hairy.

" 3. *E. hirtella*. Sepals ovate-oblong, unequal at the base, clothed above with incurved hairs. Silicles fully half as long as the upper pedicels, oblong, narrowed slightly at the apex and gradually to the base from two-thirds of the way down. Styles long. Seeds 30–35 in a cell. Leaves lanceolato-linear, acute at the apex, narrowed below into a broad petiole, furnished usually with one or two sharp teeth on each side, clothed both upon their under and upper surfaces with long, spreading, grey hairs.

" 4. *E. stenocarpa*. Sepals long, hispid. Silicles about half as long as the upper pedicels, linear-oblong (four times as long as broad). Seeds about 40 in a cell. Leaves linear, acute, narrowed into petioles which about equal the limbs, densely coated with hairs.

"5. *E. majuscula.* Sepals subrotundate, ovate, slightly hispid. Silicles fully half as long as the pedicels, oblong-elliptic, narrowed slightly especially below. Styles long. Seeds about 40 in a cell. Leaves grey, oblong-obovate, cuneate at the base, subentire or furnished with large teeth, clothed with a thick coating of short hairs. Petioles short. Habit of growth stronger than in the others, petals and silicles larger.

"If I understand these properly, as represented in Britain, I must confess myself unable to separate them specifically. *E. majuscula,* as submitted to M. Jordan and by him authenticated, is common here in fallow fields; and the ordinary form, that grows upon walls and dry hillocks, ascending from the coast level to 550 yards on the main limestone scars above Askrigg, in Goredale, and to 800 yards on the rocks on the west side of Micklefell, in Teesdale, seems to me to differ from this only by the smaller size of all its parts and the smaller number of its seeds, which are mostly about 20 in a cell. The shape of the silicles is liable to considerable variation. They are mostly about twice as long as broad; but in a plant agreeing with the common one in its leaves and the number of its seeds, which I noticed this spring on a wall near Ilkley, in Wharfdale, they are three times as long as broad. *E. brachycarpa* is much more readily distinguishable, and of this also I have procured authenticated British examples. It grows abundantly on a wall in front of the 'Hare and Hounds' public-house, at Scawton, a little village on the slope of the Hambleton Hills, eight miles east of Thirsk. A supply of specimens from this station is ready for distribution. Dr. Carrington sends it from Burntisland, in Fifeshire. From what one may gather from Jordan and Koch, *Draba præcox* of Stevenson (Mém. Soc. Mosc. tom. iii. p. 269) scarcely differs from *brachycarpa* unless by its shorter pedicels. A plant which Miss Gifford has forwarded, in different stages of growth, from Minehead Warren, in Somersetshire, has the upper pedicels scarcely twice as long as the silicles, but in other respects agrees with *brachycarpa,* as represented by French examples and the Scawton plant. Reichenbach quotes, under *præcox, Draba spathulata* (Hopp. in St. H. 60), and, according to Koch, this *spathulata* has elongated pedicels. I observe that, amongst modern French authors, Boreau and Bourguignat both register *præcox* as a distinct species: not so Grenier and Godron. As represented in my collection by specimens from Mr. Syme, Hooker's variety *inflata* has silicles about a quarter as long as the upper pedicels, broadly elliptic in shape, and much inflated; seeds about 15 in a cell; and linear-lanceolate, subentire leaves, furnished with a thick coating of hairs.

"To sum up, then, I would, at any rate for the present, regard these plants as varieties rather than species, and would state the case of *Draba verna,* as a British plant, as under:—

"*a. vulgaris. E. vulgaris,* DC.; *E. majuscula!* and *glabrescens?,* Jord. Silicles oblong, elliptic, compressed, about half as long as the upper pedicels. Seeds 20–40 in a cell. Leaves oblong-obovate, narrowed gradually below, usually toothed. Common.

"*β. præcox. D. præcox,* Stev., Reich., etc.; *E. præcox,* DC.; *D. spathulata,* Lang.; *E. brachycarpa,* Jord.! Silicles elliptico-rotundate, compressed, half to a quarter as long as the upper pedicels. Seeds 15–20 in a cell. Leaves ovate-lanceolate, entire or toothed. Habit of growth slender. Fifeshire, Yorkshire, Somersetshire.

"*γ. inflata,* Hook. Silicles about a quarter as long as the upper pedicels, broadly elliptical, when cut presenting a roundish transverse section. Seeds 15–20 in a cell. Leaves linear-lanceolate subentire. Ben Lawers.

"It may be worth while for our members to look over their specimens and examine them."

Mr. J. H. Davies communicated the first part of a paper from Dr. Carrington on the British *Orthotricheæ.* After an elaborate analysis of the subordinate characteristics, it proceeded as follows:—

"The genera of *Orthotrichum* and *Zygodon* resemble each other very nearly, and form a most natural group of Mosses, and yet no section has given more trouble to systematists. It was impossible to make an arrangement which depended upon the structure of the peristome apply in this instance, where it was wanting, single, or double, composed indifferently of 8 or 16 teeth and cilia; and equally impossible to distribute plants so evidently alike in habit over nearly every section of the old method. As Mr. Wilson justly observes, 'this genus affords a striking example of the futility of any generic character derived solely from the peristome. It is in fact a non-essential organ, and, like the corolla in flowering plants, its divisions are useful only as affording specific characters.'

"Thirty-four species of *Orthotrichum* are described in the 'Bryologia Europæa;' of these, twenty-three are given in Wilson's work as natives of Britain, and one has been found in this country since its publication, so that twelve additions have been made to this genus alone since the publication of Hooker's 'British Flora' in 1833. Little is known at present of the laws which regulate variation. The species, of any Order, which have the widest range of distribution always seem the most liable to change their characters; and this rule holds good with reference to the *Orthotricheæ*. Alpine species, like *O. Ludwigii*, and species confined to peculiar habitats, like *O. Sprucei* and *stramineum*, are usually constant; but more commonly distributed species, like *O. affine*, found indifferently upon trees, walls, and rocks, are subject to considerable variations. It becomes the bryologist therefore not merely to acquaint himself with the plant in its different stages of growth, but also with its appearance in certain soils, and in humid, or dry and exposed localities. The usual habitat of *O. affine* is near the roots of trees, or nestling in some shady place where the direct rays of the sun seldom reach it. In such places the leaves are dark green, broad and undulated, the cellular tissue well developed, the capsule narrow and pallid, and the calyptra light green. On hedges and trees exposed to the sun, especially in dry subalpine countries, another form is not uncommon: the leaves are more acute than in the other, more rigid and of lighter colour, the capsule more developed, stronger, and browner, and the calyptra yellowish-brown. This constitutes the *O. fastigiatum* of Bryol. Eur., and every shade of difference may be found between the two. There is yet a third well-marked variety, found occasionally on trees by streams, which approaches *O. rivulare* in habit, and may readily be mistaken for that species. The leaves are very obtuse, and of more succulent texture than in the ordinary form, in colour lurid-green; the capsule is exserted, but pale and leptodermous, and the calyptra of a lurid-green tint. From its resemblance to *rivulare* we have called this variety *rivale*."

KEW GARDENS.

[It is hoped that the following extracts from Sir W. J. Hooker's Report on Kew Gardens will be interesting to the readers of the 'Phytologist.']

The Botanic Garden, *proper,* has been augmented from the 14 acres, of which it consisted, at the time of my appointment, seventeen years ago, to 72 acres. The number of visitors has gradually increased from 9174 (in 1841) to 361,978 in the year now closed (1857); and of their general, and I may say improved, conduct, I can speak in very satisfactory terms. . . .

The Botanic Garden, including the several Plant Houses.

The walks and lawns, the shrubberies and flower borders, have lately been, under the directions of the First Commissioner, rendered more ornamental than ever, and means are amply provided for their permanent improvement. The summer flower-beds have been more than doubled in number. Roses and flowering shrubs have been extensively planted, and their beauty will be yearly more developed. A number of vases and pedestals have been provided, some of which are permanently placed, and others will be so when the weather permits. Several new walks afford increased access to the various parts of the gardens and the different buildings. There has been a large accession of new and rare plants, derived partly from collectors abroad and partly from our system of exchange with other scientific establishments. The general keep of the plants, both hardy and tender, is improved: this is mainly due to our being now enabled to maintain a more efficient staff of gardeners and foremen, for it is obvious that we could not command superior persons for our work till we gave them a remuneration equal to what they could obtain in other first-class gardens. With the approbation of the First Commissioner, I have ventured to recommend the extension of this system, and have kept it in view while framing my estimates for the coming year.

No one can fail to be struck with the improved condition of the plants in our noble Palm-house, their unrivalled health, vigour, and beauty. The Orchideous-house, the Heath-house, the Ferneries, the succulent plants, the Camellias and Rhododendrons (especially the Indian ones), are all in a most satisfactory state. . . .

The Museum of Economic Botany.

It has been the privilege of Kew Gardens to remove the stigma, long and not unjustly cast upon scientific botany, viz. that it is of but small *practical* use; and this was happily effected when the *first* Museum was founded, ten years ago. It is obvious that the spectacle in the garden, of those living plants which yield substances valuable in commerce, in the arts, in medicine, and in domestic economy, when coupled with a museum where those very products, in different stages of preparation, are displayed, must be useful. The most precious gifts of Nature, shown both in their rude condition and as adapted to his *uses* by the ingenuity of man, cannot fail, when thus combined, to prove of great and telling importance, fraught with instruction, and appealing forcibly to the eye and the understanding. And this leads me to the great event of the past year, viz. the opening, in May, of a new and *second* Museum, which is a spacious three-storied building, containing, in its three large apartments on each floor, 11,000 superficial feet of glazed mahogany cabinets, from one to two feet deep, besides numerous large objects not requiring protection, and an extensive series of botanical drawings, engravings, and portraits, which are suspended on the walls. Government has, from the first, been liberal towards the museum, and the interest which the First Commissioner took in the matter has caused the new edifice to be well adapted to its purposes, for it is lightsome, and so spacious as to permit the objects to be arranged both systematically and instructively. The old museum contains glazed cabinets measuring 6000 superficial feet. One has only to see the immense numbers of people, from the prince to the peasant, who visit these collections, and to be told that, almost every day, application is made for information respecting some part or other of them, the woods, the fibres, the drugs, dyes, etc., to appreciate the practical utility of these museums.

During the past year the important series of specimens, obtained by gift and purchase, from the "Exposition Universelle" at Paris, and the valuable donations of the Commissioners for our "Great Exhibition" in 1851, have been received and deposited in their proper places.

The Scientific Department.

The Royal Gardens of Kew, it must never be forgotten, were long maintained by the Royal Family, especially under the auspices of his Majesty George III. and of Sir Joseph Banks, with a special view to the promotion of science. This is proved by the several editions of the 'Hortus Kewensis,' prepared by Aiton, Solander, and Brown, and by the magnificent collection of exquisite drawings made by Bauer of the plants in these Gardens, which is now deposited in the British Museum. This department has not been neglected of late years; on the contrary, there has grown up, in connection with the Botanic Garden, an herbarium and a library (which are maintained, by the gracious consent of her Majesty, in the house formerly occupied by the late King of Hanover), and which are second to none in the world for extent and usefulness. Their progress, and the donations bestowed upon them, have been related in my former Reports. The immense service rendered by this herbarium and library to authors engaged on botanical and horticultural labours, and in investigating the economical uses of plants, is fully acknowledged throughout Europe. During the past year alone the following works have been entirely carried out by means of the *hortus siccus,* the books, and the drawings here deposited; and upwards of fifty scientific persons have been engaged, for a longer or shorter time, in special studies bearing on the publications which they are preparing, because of the extraordinary facilities here afforded them. Of these the following distinguished gentlemen have fixed their abode in Kew, for consecutive weeks and months, for this sole purpose.

1. Dr. Grisebach, Professor of Botany at Göttingen; preparing a Flora of the British West Indian Islands, under the authority of her Majesty's Secretary for the Colonies.

2. Dr. Engelmann, of the United States, working at *Cacti,* and the genera *Euphorbia* and *Cuscuta.*

3. Dr. Andersson, Botanical Professor at Stockholm, engaged on a general work on Willows.

4. Dr. Nylander, of Paris, who is publishing the Lichens of all parts of the world.

5. Professor Œrsted, of Copenhagen, specially occupied with the plants of Mexico.

6. Dr. Harvey, Professor of Botany in the University of Dublin, working on his 'Flora of the British Possessions in South Africa.'

7. The Rev. Richard Lowe, for his new publication, a Flora of Madeira.

The *habitual visitors*, engaged in botanical publications, are the following:—

1. Mr. Thomas Moore, of the Chelsea Physic Garden, for his book on Ferns.

2. Dr. Lindley, the *Orchids* of India.

3. Fred. Currey, Esq., M.A., engaged with the *Fungi*.

4. Rev. M. J. Berkeley, the *Fungi* and *Cryptogamia* in general.

5. Professor Henfrey, various works connected with botany.

6. Mr. Mitten, *Mosses* and *Hepaticæ*.

The following individuals have studied in the Botanical Library and Herbarium for a length of time, in preparation for foreign travel, or for government situations requiring a knowledge of botany:—

1. Dr. Sinclair, for many years the Colonial Secretary of New Zealand, preparatory to exploring the botany of that colony.

2. Mr. Bourgeau, previous to accompanying Captain J. Palliser as botanical collector to the British North-American Exploring Expedition.

3. Professor De Vriese, of Leyden, before proceeding on a highly important botanical and agricultural mission to Java, under orders of the Dutch Government.

4. Dr. Kirk, about to start with Dr. Livingstone, as naturalist.

5. Dr. Lyall, R.N., recently appointed botanist to the Expedition sent to determine the boundary line between the British and United States' possessions in North-west America, etc.

6. Corporal Buttle, of the Royal Engineers, who was training as an assistant collector in the last-mentioned Expedition.

7. Mr. C. Wilford, to qualify himself for his botanical and horticultural mission to China, Japan, and Manchuria.

8. Mr. Prentis, Assistant-Surgeon to the Honourable East India Company, previous to his departure for India.

It is not possible here to specify all or nearly all the very numerous works upon botany, and the papers relating to botanical subjects, which have been published during the past year, and which have been, wholly or in part, elaborated at the Herbarium or by means of its contents; still I were wanting in gratitude if I omitted to express again our obligations to George Bentham, Esq. (the liberal donor of his herbarium and library, mentioned in former Reports), who continues daily to devote his time to these collections, and to scientific publications connected with them. This gentleman has just completed a Flora of the British Islands. Dr. Seemann's 'Botany of the Voyage of H.M.S. Herald' (published by order of the Lords of the Admiralty) has been finished; the 'Botanical Magazine,' a work which specially illustrates, by coloured plates, the plants of the Royal Gardens of Kew, continues to appear monthly; a new periodical has been commenced, devoted to illustrating, by quarto coloured plates, the Ferns of the same Gardens; the 'Flora of Tasmania,' published under the authority of the Lords of the Admiralty, approaches completion, and its author prosecutes his publication on the Botany of India, and assists in conducting through the press the Flora of Ceylon, which is the work of his friend Mr. Thwaites, Superintendent of the Botanic Garden of Ceylon. . . .

During the past year the Herbarium has received important accessions in the collections sent home by the following individuals, who are employed at the expense of Government:—

Mr. Barter, botanist to Dr. Baikie's second Niger Expedition. —If all the collections arrive safely, and are as valuable as those which have already come, there is no question that our acquaintance with the vegetation and commercial vegetable productions of tropical Western Africa will much exceed all that has been effected by preceding explorers. (Foreign Office and Admiralty.)

Captain Denham's naturalist, attached to his surveying voyage in the less known parts of the South Pacific, especially the Fejee Islands, etc. etc. (Admiralty.)

Mr. Bourgeau, who accompanied Captain J. Palliser's Exploring Expedition, previously mentioned, in British North America. (Colonial Office.)

Dr. F. Mueller, Botanist to the North-Australian Exploring Expedition. (A colonial appointment.)

Mr. Charles Wilford is sent to Hongkong and Japan, and will join the survey of the coast of Manchuria. His collections are daily expected. (Admiralty in part, aided by a special grant from the Treasury, on the application of our First Commissioner.) . . .

It may be added, that from our own pleasure-ground nursery were sent, with the sanction of the First Commissioner, and without detriment to our grounds, various hardy ornamental trees and shrubs, particularly evergreens:—to Battersea Park, 4013; Hyde Park, 2976: Victoria Park, 2300; total, 9289. . . .

BOTANICAL NOTES, NOTICES, AND QUERIES.

NASTURTIUM OFFICINALE AT CLENT.

In the March number of the 'Phytologist' is a statement, signed "A. N.," that "*Nasturtium officinale* fails in a large circle round Clent," and that, "except where planted, it appears nowhere for miles." Allow me to caution your correspondent against hasty negative generalizations. In the streams on the west of the villages of Clent and Hagley, *Nasturtium officinale* is common, and although it occurs less frequently among the hills, it can scarcely be said to be rare there, as I have, during the last fortnight, seen it in four distinct localities, where it is not at all likely to have been planted. I have no doubt that a diligent search would greatly increase the number. WM. MATHEWS, Jun.

Edgbaston House, Birmingham, May 17, 1858.

LEUCOJUM ÆSTIVUM.

I have seldom enjoyed a greater botanical pleasure than in finding yesterday, for the first time, the *Leucojum* in the Plumstead Marshes. I had always missed it hitherto by seeking for it *above* Greenwich, according to the fallacious indication (no doubt true once) of Curtis and Smith. I was delighted to see that in two different swamps, both already well known to me, this beautiful plant exists in such profusion that all the botanists in England would scarcely exhaust it; and as both places are within the practising-ground of the Arsenal, they are not likely to be drained and built over. J. S. M.

May 17, 1858.

ISATIS TINCTORIA.

I have had the unlooked-for good fortune of finding a new habitat for *Isatis*, near West Wickham, in Kent, not far from the cart-track which leads along the foot of the hills to Keston Church, a neighbourhood otherwise notable for its abundance of Daffodils and *Lathræa*. The *Isatis* being in the midst of a meadow ripe for the scythe, it may have been there, and may remain there, an indefinite time, without being ever allowed to exercise its wonderful power of propagation by seed. Whether it spreads easily by root I do not know.

In the same walk I found *Trifolium striatum*, at a corner of Keston Heath, and *Polygonum Bistorta*, in splendour and profusion in a meadow adjoining the lane from Bromley to Hayes. A hop-ground close to the same lane exhibited, two months ago, nearly the finest show of *Veronica Buxbaumii* that I ever saw in England. G. S. M.

June 7, 1858.

OSMUNDA SPICANT.

Mr. Editor,—Both your correspondents who have meddled with the above specific name may learn something from the following extract. See Beckmann's 'Lexicon Rei Herbariæ,' 8vo, 1801.

"*Spicant* (Osmunda). Nomen in Germania corruptum e *Spica Nardi*, seu *Spica Indica*. Videntur majores Osmundæ hocce nomen indidisse quod ejus radices ad similitudinem *Spicæ Indicæ* accedunt. Quæ est sententia Gesneri in Hort. German., p. 265."

"Beta" is doubtless right when he states that there is no evidence that Linnæus ever wrote the term *Spicans* instead of *Spicant;* and your other correspondent is also quite right in saying that Linnæus was not such a novice in etymology as to derive the term from the ind. pr. 3. per. pl. of *Spico*, or p. *Spicant*, the third person pl. of *Spico*. But there are things not dreamed of in etymology, as there are said to be such in philosophy.

GAMMA.

LINARIA MICRANTHA.

A plant of the south of Europe was seen at the time and place undermentioned:—

A small, upright species was found in June–July, 1838, on a wild, uncultivated bank, amongst Heath, Furze, etc., by the side of the road leading from the Lodge of Felbrigg Park to the Holt road, about two miles from Cromer, Norfolk. It grew about four to six inches high, and the flowers were small, white. Query:—Has any one since found it there?

M. H.

The accompanying plants are so pretty I cannot forbear enclosing them. *Equisetum sylvaticum* creeps out into our pastures, and more northerly, as in Cumberland, overspreads them. We have lately added to our local Flora a lovely, *deep-rose*-coloured variety of *Oxalis Acetosella:* we have it also purple, and, in abundance, of its usual white colour. The spring flowers are certainly a refreshing display of the energy of a new life, so abundant and so fair; and yet by their very stature and economy evidently designed to meet a changeful and often tempestuous season. No tree puts on so conspicuous a bloom as the banks and meadows do; but the trees had survived the winter, and some of them had not even cast their leaves: they typically represent *the quick*—the living on earth at the coming of the Lord, while the spring blossoms of the *Anemone*, Goldilocks, Squill, and Cowslip, etc., long since buried and asleep in the dust, beautifully shadow forth the divine truth, that "the dead in Christ shall rise first." Neither in the vegetable nor in the spiritual world should we have anticipated this; and yet the Prophet seems to have connected both together in his admirable poetry, Isaiah xxvi. 19.

G. S.

THE WEATHER IN INDIA.

There has been no rain, or only two inches for six months. The crops are suffering severely, and the natives expect the drought to continue. If it does, there will be real distress for food, a thing not seen in Bengal these eighty years. In Assam the scarcity has reached nearly to the famine point, and in Burdwan, a badly cultivated district, chiefly in one estate, and weighed down by seven or eight middlemen, matters are very little better. The Bamboo, too, has flowered, a phenomenon which occurs only once in forty years, and is considered by the natives a sign of impending drought. The flower is full of seeds, which are edible, and are considered by the natives to be given by God in order to provide against the deficiency of rice. The season is a most unnatural one, the thermometer in Calcutta standing in the shade at 104° at three o'clock, and in cool houses at 96°. At Azimghur it is 106° in tents, and the troops knock up by nine o'clock.—From the *Times*' Calcutta Correspondent, May 29, 1858.

CLIFTON PLANTS.

I have just returned from Bristol, where I found *Arabis stricta, Trinia vulgaris, Potentilla verna, Geranium sanguineum, Convallaria Polygonatum*, the last not yet in flower. J. S. M.

May 26, 1858.

MARTAGON.

Mr. Editor,—*Pace* "F. C.," who kindly admonishes the young and ignorant to consult Paxton's 'Botanical Dictionary' when they cannot make out the meaning or the derivation of a term, I beg to propose the above. They that crack the nut deserve the kernel, and I will vouch that Sir Joseph has not broken his grinders on it. I therefore humbly request that some reader who knows Turkish will give me, through the 'Phytologist,' the result of his philological cogitations on the word *Martagon*.

IOTA.

(See 'Phytologist,' vol. ii. p. 455.) Naturalized Plants of Great Britain:—In the range of *Ononis reclinata*, the locality of Alderney, on the *north*-west coast of France, and its station nearest to Great Britain, was accidentally omitted. At p. 459, instead of "native," 'Cybele Britannica,' following *Impatiens Noli-me-tangere* and *Sedum reflexum*, the words should have been, "native?" *i.e.* "doubtful native," as in the case of *Teucrium Botrys*.

We beg to inform our readers that a correspondent of the 'Phytologist' has several fascicles of alpine and other rare Scottish plants for disposal: they have been recently collected in Braemar, Clova, and other parts. The price is 5*s.* per hundred unmounted. Those who desire sets should address a note to M. D., Post-Office, Airdrie.

Communications have been received from

Charles Hobkirk; J. S. Mill; Miss M. Hutton; E. Green; Rev. W. M. Hind; W. P.; Daniel Stock; Charles Empson; Archibald Jerdon; H. B.; J. Gifford; R. K.; John Sym; W. Windsor, F.L.S.; A. G. More, F.L.S.; G. E. S.; Rev. R. H. Webb.

BOOKS RECEIVED FOR REVIEW.

Sir W. J. Hooker's Report on the Royal Botanic Gardens, Kew.

GLEANINGS IN WEST GALWAY.

By the Rev. W. M. Hind.

It is now about two years since I had the pleasure of spending a week in Clifden, Connemara. I had been induced to direct my steps in that direction, as much with a view of paying a quiet visit to some of the schools of the Irish Church Mission in that neighbourhood, as of enriching my herbarium. I must confess that I was as fully rewarded in the former as in the latter case; and, were this the proper means for so doing, should feel happy in bearing my favourable testimony to the mission work carried on in the far west. Though it is now an old story, and I cannot claim to have made any discoveries in the district to which my paper refers, still a notice of some of the rarer plants of our native Flora, which I observed, may not be unacceptable to your readers. I reached Galway late at night, July 5th, 1856, having proceeded from Limerick to Killaloe by car, and thence by the steamer up the Shannon, with its splendid lakes, to Athlone, and thence by railway to Galway. The Midland Hotel I found everything that attention, excellent accommodation, and good management should render an hotel; though it had one great want, namely, visitors,—but here the public, and not the managers, are in fault.

Next morning I paid a visit to the Claddagh, a portion of the town of Galway inhabited by fishermen, said to be of Spanish descent, and having certain peculiarities of dress, customs, and appearance. Certainly I found the district more interesting than pleasing; as certain odours of stale fish, and the not over-clean look of the people and their hovels, proved rather a hindrance to the enjoyment of the scene. I therefore soon turned my steps in a different direction; and after rambling about the town to inspect some of its notabilities, strolled past the magnificent College, and along the western bank of the river. Here I observed *Samolus Valerandi*, L., *Menyanthes trifoliata*, L. (in fruit), *Salix pentandra*, L., *Potamogeton perfoliatus*, L., *Carex ampullacea*, Good., *Alopecurus geniculatus*, L., and *Equisetum limosum*, L. So far I had seen nothing worthy of remark; and had I been able to leave Galway, as I intended, by the mid-day car for Clifden, should have gone away with the impression, that the City of the

Tribes had no great attractions for the botanist. I found, however, that some votaries of Thespis, who were going to exercise their art at Clifden, had engaged all the seats on the car; and I was of necessity left behind. To make the best of my disappointment, I strolled towards some strange-looking, grey-coloured knolls, lying to the north-west of the town, and not far from the south-eastern shore of Lough Corrib. These I found to consist of a compact granulated limestone, or, more properly, marble, furnishing a capital material both for ornamental work and for building. The supply is inexhaustible, as the whole country round seems to be nothing but marble. This limestone lies for the most part quite bare and barren; but in its hollows, where soil has been collected, it has a rich native and artificial vegetation. I observed, plentifully, *Geranium sanguineum,* L., nearly past flowering, and a variety of *G. robertianum,* L., with white flowers and very dark green leaves. Also *Rosa villosa,* L., and, in damp spots, *Hippuris vulgaris,* L., *Rubia peregrina,* L., *Galium boreale,* L., and *Asperula cynanchica,* L., were all plentiful. *Euphrasia gracilis,* Fr., of the London Catalogue, was abundant, but I understand that Mr. Babington refuses to admit its claim to *specific* honours. It grows in company with the ordinary *E. officinalis,* L., and may at least claim to be a well-marked variety. *Ceterach officinarum,* Willd., grows luxuriantly in the chinks of the marble rock. The only specimen which I collected was too large for my paper, and had to be reduced in size to render it available for the herbarium. Its pinnæ were not simply rounded but much sinuated.

My next attempt to get to Clifden was more successful. Between Galway and Oughterard I observed the *Ceterach* occasionally growing on old walls. Beyond the latter place I was able to collect a few plants of *Pinguicula lusitanica,* L.; *Peplis Portula,* L., I found in a small stream on the roadside; *Carduus pratensis,* Huds., appeared in several places; *Pastinaca sativa,* L., in cultivated grounds; and *Cladium Mariscus,* "Br.," in the small lakes near Ballynahinch. The same evening, after reaching Clifden, I had time for a short walk on the hill behind the Orphan Nursery, and found *Rosa Sabini,* Woods, several *Rubi,* among which was, so far as I could make out, *R. imbricatus,* Hort. *Carduus pratensis,* Huds., was abundant; and *Menziesia polifolia,* Juss., the prevailing plant of the district, was just coming into flower. On the hills around Clifden there were several species of *Salix;* among which were *S. cinerea,* Sm., *S. oleifolia,* Sm., *S. aurita,* L., *S. argentea,* Eng. Bot., and another belonging to the same group as the last named.

Next day I set off for an excursion towards Urrisbeg mountain, in the direction of Roundstone. After passing Ardbear, where I observed a white-flowered variety of *Aster Tripolium,* L., I left the highway, and struck across a heathy moor, which was intersected with a chain of small lakes. Had my purpose been to reach the mountain in the shortest possible time, I should have been sadly disappointed, as I soon found that I was in the midst of a watery labyrinth. However, the shallow lakes proved famous hunting-ground, furnishing *Myriophyllum alterniflorum,* DC., *Lobelia Dortmanna,* L., *Eriocaulon septangulare,* With., *Cladium Mariscus,* "Br.," and *Scirpus fluitans,* L. In the small streams were *Stellaria uliginosa,* Murr., *Utricularia intermedia,* Hayne, and *U. minor,* L. (neither of them in flower), and *Anagallis tenella,* L., *Menziesia, Erica Tetralix,* L., and *E. cinerea* were in great plenty over the greater part of the moor; and, very likely, *E. mediterranea,* L., also; but not being in flower I did not detect it. A variety of *Euphrasia* appeared on the dry moor, having a very erect, branchless habit, with small flowers and leaves, the latter of a purplish-brown colour, and their serratures very blunt, almost crenate. On moist ground, near the foot of Urrisbeg, was *Narthecium ossifragum,* Huds., and the rare *Rhynchospora fusca,* Sm. *Drosera rotundifolia,* L., and *D. anglica,* Huds., were very abundant almost everywhere. *Gnaphalium dioicum,* L., grows plentifully on Urrisbeg. So far, my day's search had not been without its reward, and had circumstances permitted, I believe I should not have returned to my inn without further spoils. But Connemara is proverbially a moist region; and I had soon practical proof of the fact. I had hoped to have a good view of the Bunabola or Twelve Pins from the summit of Urrisbeg, but long before reaching this latter, the Pins were enveloped in a thick mist which foreboded no good to me. Very soon a heavy drizzle forced me to turn my face homewards, as there was no gainsaying the fact that the evening was fully determined to be rainy. Having nothing else for it, I patiently trudged across the moist heath, following, as well as I could, an indistinct path, which, though occasionally a deceitful, yet on the whole proved a friendly guide to me.

The remainder of my stay at Clifden was too much within-doors, on account of the obstinacy of the weather, to permit of much being done in the way of exploring. I managed occasionally to get out for an hour or so at a time, but was not able to go to any great distance, and therefore can do little more than name a few plants which I observed in such stolen runs. Close to the town I found *Erodium moschatum,* Sm. Skirting the mountain road, above the Castle, were the not very rare plants *Hypericum quadrangulum,* L., *H. humifusum,* L., *H. pulchrum,* L., *Lythrum Salicaria,* L., *Lycopus europæus,* L. On the road leading to Streamstown and the Killeries were *Montia fontana,* L., and *M. rivularis,* Gmel., *Callitriche platycarpa,* Kütz., and *Ranunculus hederaceus,* L. *Saxifraga umbrosa,* L., appeared in one spot in great plenty, of a small and very compact habit. Near Ardbear was *Erythræa latifolia,* Sm., and on the sea-shore large plants of *Schoberia maritima,* Mey. *Juniperus nana,* Willd., grows on the hill between Clifden and Ardbear Bay, and also a considerable variety of Lichens, among which were several *Parmeliæ, Ramalina farinacea,* Ach., *Usnea barbata,* Ach., *Isidium corallinum,* Ach., *Sphærophoron coralloides,* Turn. and Borr., and *Cladonia turgida,* Schær. As I do not wish to lengthen this paper, I must omit particular mention of the splendid mountain scenery which has made Connemara the resort of tourists. Were the facilities for travelling in the district still greater, the number of visitors would likely much increase. As it is, there is enough to reward either tourist or naturalist, should he find the weather propitious.

A Fact for such as believe in the Transmutation of Species.

On the twenty-third of June I found a Grass on a heap of soil near Kensal New Town, which, at first, I supposed to be a species of *Festuca,* but on examining it, discovered that it was really a specimen of *Lolium perenne,* L. The inflorescence was very abnormal, being a dense and considerably branched panicle, very different from anything I have observed before. I am familiar with what may be called the cristate state of the plant, in which the spikelets are set on at nearly a right angle with the rachis. I have also seen a double spike on one culm. In the present instance it is a fully developed panicle, bearing at least five times as many spikelets as the plant does in its normal condition. Notwithstanding its exuberant growth, it is not a *Festuca,* a *Dactylis,* or *Glyceria,* but retains, even in its abnormal condition, the unmistakable features of a *Lolium.* In other words, *vagaries of growth do not transmute species.* W. M. H.

Bayswater, July 2nd, 1858.

THE VITALITY OF FERNS.

A few days ago* I was very pleased to meet with evidence proving the facility with which some Ferns, even under very unfavourable circumstances, maintain their existence for a long period; and perhaps my best way to bring the matter before your readers, will be a rehearsal of the facts from the beginning.

We were returning from our North Welsh tour in October last, when, just descending the Montgomeryshire slope of the Berwyns,—say a mile before entering Llangynog by Milltir Gerrig,—some magnificent plants were noticed, and in considerable abundance, of the elegant Mountain Parsley Fern, *Cryptogramma crispa.* I am sure I speak within compass when I say that a bushel-measure could not have been placed over some of the plants without crushing or pressing them, so large and so vigorous were they; in fact, finer patches, or so many within one view, had never before come under our notice. Recollecting that a friend in the neighbourhood of London had expressed a wish to try to cultivate it once more in his fernery, a few plants of the most portable size—nice, snug, close, easily-removed individuals—were selected, shaken out, and put dry into the carpet-bag; and into very close quarters we were forced to stow them. This was on Tuesday, the 21st day of October, 1856. Upon our arrival in London, they were unpacked and handed over, on the 25th, to our friend above mentioned; but by some means one of the plants was left behind, and it, when emptying out the carpet-bag, was placed, without any care, in an empty tin vasculum, put aside, and altogether forgotten. In the last week of April, 1857, having occasion to use this said tin vasculum, I discovered, on opening it, that this perfectly dried, withered plant of *Cryptogramma crispa* was there, and my first idea was to throw it behind the fire. On second thoughts, I placed it within a common garden-pot, the inside of which I had well moistened, set the pot in a shallow pan, and covered the whole with a glass shade, placing it within the influence of the morning sun, and watched it carefully. It had not been more than a week under this treatment before it began to show signs of vitality, first gently swelling in the centre, then gradually unfolding its beautiful circinate foliation, and is now (May 25th) in apparently a healthy, if not a comparatively vigorous state.

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* These remarks were drawn up on May 25th, 1857, but the interest connected with the facts recorded is somewhat increased by the circumstance that the plant referred to is still (Midsummer, 1858) flourishing in a Wardian case here in Frith Street.

Useful inferences may be drawn from the facts thus brought under notice by purely accidental circumstances as above related.

1. Here is a period of six months, during which time the plant is enabled to maintain its vitality without any attention, moisture, or extraneous nourishment of any kind whatever.

2. The knowledge acquired by the simple fact above narrated may surely be turned to account by those who are interested in the successful transport of plants from one distant part of the globe to another, for there are comparatively few voyages now of so long duration, I think, as six months.

3. If it be safe for one of so little experience in such matters as myself to hazard an opinion, I would suggest that one very principal reason why the plant did not perish, was the fact of its having been taken from its place of growth in the Berwyn mountains, firstly, by removing the loose pieces of rock, stones, and *débris*, among which it grew, without injuring the crown, rhizome, or fibres; secondly, by stowing it away after having well shaken the small quantity of soil from its roots *while in a dry state;* thirdly, by its having been kept altogether in a dry state during the winter months,—indeed, one is led to think that in packing living Ferns for transport, they should be kept almost entirely free from moisture, perhaps tied up in *dry* moss.

Another lesson may be gathered from this matter. From the whole we may learn that there is an almighty Power who is the Author, the Giver, and the Preserver of vegetable as well as of animal existence, "who holdeth our SOUL in life, and suffereth not our feet to be moved." W. P.

45, *Frith Street, Soho, London.*

Distinction between Melica uniflora *and* M. nutans.

By A. Jerdon.

Having lately found *Melica nutans* in this neighbourhood, where it is a rare Grass, I observed the following difference between the two species, which have a considerable *general* resemblance to each other:—

The glumes of *M. uniflora* are *as long as*, or even longer than, the glumellas; while those of *M. nutans* are a good deal shorter, and only about half the length of the glumellas. This difference does not appear to have been noticed by authors. The glumes in both species have the same brownish-purple colour.

The barren floret in both species is clavate, or rather, turbinate-clavate, and hyaline, and is found, when dissected, to consist of the rudiments of several (generally *three*) undeveloped florets; but in *M. uniflora* the pedicel which supports it is considerably longer than in *M. nutans*.

Mossburnford, Jedburgh, N.B.

PLANTÆ DOMESTICÆ.

Domesticated Plants, if the term be admissible.

It is an assumed fact that certain animals are incapable of existing but under the protection of man. It is perhaps an admitted fact, but it may be treated here as an assumption. As a corollary to this admission, or assumption, it follows that the wild cattle of England, the wild horses and beeves of America, are escapes from domestication. Reasoning analogically, it may be assumed, or perhaps admitted, that cultivated plants are occasionally, nay often, found as escapes from cultivation. Few or any of them are capable of subsisting without the care and protection of the cultivator.

It is a very general but not a universal opinion, that all cultivated plants existed originally in a natural state. This is not the general opinion of zoologists in reference to the origin of domestic animals. It is generally admitted that the powerful and more ferocious animals would, after a time, destroy the gentler herbivorous races. In the vegetable kingdom an analogous process may be observed when a field is cropped with Clover, Ray-grass, or any artificial crop whatever. The Grasses or weeds, or strong plants, will, in the course of a few seasons, displace the new-comers, and leave barely a trace of their ever having been there.

These cultivated plants, be their origin what it may, are divisible into three classes:—1st. Cereal plants, culinary plants, legumes, etc. 2nd. Ornamental plants, such as Wallflowers, Carnations, etc. 3rd. Trees and shrubs, either planted for timber, for shelter, or ornament, or fruit. It is obvious that there are several plants in each of these classes that would soon cease to exist if they were not preserved, by human care and labour, from the encroachment of stronger-growing plants, which would speedily choke them unless prevented by the cultivator.

Scientific men admit that the belief that all our cereal Grasses, our fine flowers, and exquisite fruits, were originally derived from the Dog's-wheat Grass, for example, or the Maiden Pink of our pastures, etc., is a vulgar error. May it not also be a vulgar error to assume that our Parsnip, Carrot, or even the Cabbage, about which something has been printed in the 'Phytologist,' originated in what we botanists call *Daucus Carota, Pastinaca sativa, sylvestris*, or in *Brassica oleracea?* There is nothing contrary to reason nor philosophy to assume *à priori* that certain plants have existed among us from time immemorial, or rather from a time antecedent to that remote era. The most remote mention of animals and fruit, camels, horses, corn, figs, and olives are almost synchronous. The question mooted about the origin of our garden or cultivated Cabbage will never be satisfactorily settled by mere assertions, either that it is or that it is not derived from what botanists are agreed to call *Brassica oleracea.* All botanists are not agreed to receive this opinion as a final settlement: for example, Grenier and Godron (Flore de France, *in loco*) describe the Wild or Sea Cabbage as an escape from cultivation. De Candolle again surmises that it may be a hybrid, or the result of a cross between two or more sorts of Cabbage. Be this as it may, it is evidently a mistake to affirm, as in the 'Phytologist,' p. 401, vol. ii. N.S., "that the Sea Cabbage is best able to maintain itself and to reproduce its kind." Every nurseryman, or rather seedsman or seed-grower, knows that the very best sorts of Cabbages, Brocoli, Cauliflower, Savoys, etc., produce seeds as plentifully as the Sea Cabbage. In reproductive capabilities, the domestic or horticultural or agrarial plant is just as perfect as its maritime relation. This does not affect the question about the origin of the plant, which appears to have been known as a cultivated vegetable more than twenty centuries ago. It is very probable that we are indebted to the Romans for its introduction among us. There are no very conclusive reasons for admitting the Sea Cabbage as aught but a naturalized species. It may be placed in the same category of vegetable citizenship as the Tree Mallow and the Sea Stock. Both the latter are naturalized on cliffs bordering the ocean. All three are extensively cultivated, and it is not a very improbable opinion that they have all been, in process of time, established by various artificial or natural agencies. Several reputed British plants are escapes from cultivation, of which only a few need here be mentioned to prove that it is not incredible that the Sea Cabbage may be one. There is no specific difference between the large-petaled and deep-coloured Wallflowers of the garden and the small yellow-flowered variety of the old ruins of castles and of rocks contiguous to such buildings. The Clove Pinks and Picotees are probably of the same species as the Wild Carnations and Pinks of our old abbeys and mouldering walls. These analogies and assumptions are not offered with the view of supporting any one of the three opinions recently broached in the 'Phytologist,' but with a wish that those who have the means, *i. e.* who live near the sea, where the Sea Cabbage grows, would examine the wild plant, comparing it with the cultivated varieties, and report through that which is the medium of this communication.

VERITATIS AMANS.

FRESHWATER, FRESHWATER GATE, AND YARMOUTH.

The road from Newport to Freshwater, about ten miles long, is through Carisbrooke and Calbourne, by an open country, and partly over the downs. The views from many points are beautiful, and from all extensive. After crossing the western part of Apes down, about two miles from Carisbrooke, there is an exquisitely charming locality, a sequestered nook which contains every element of a strictly lovely scene: situation, verdure, trees, wood, lawn, hill, vale, all combine in forming a landscape, rare even in the Isle of Wight. The village of Calbourne, a little further onwards, is also pleasantly situated. The decayed town of Newtown is on the right-hand, a mile or two from the road to Freshwater. Before the passing of the Reform Bill this insignificant place had the privilege of returning two members to the Imperial Parliament, though its population did not reach the average number of inhabitants to be found in most villages in England. Newport, the metropolis, is now the only borough in the island which enjoys the electoral franchise.

The village of Freshwater, consisting merely of the church, an inn, a shop, a farmhouse, and two or three tenements, is on the west side of the Yar, about a mile from its source, and two miles from its influx into the sea. The bridge across the river to Freshwater is an ancient and rather picturesque object. The river is tidal nearly to its source. Below bridge, when the tide is highest, it has a good appearance, being from half a mile to a mile in breadth. On both sides there is pretty scenery, but nothing very attractive. When the tide recedes, the tiny stream meanders between the extensive mud flats or banks and is by no means a pictorial object.

Freshwater is a straggling place, being mostly detached farms, with small rows of cottages scattered about on the roads to Alum Bay and Freshwater Gate; at both of which places there are hotels for the accommodation of visitors, the latter being considered one of the most fashionable and aristocratic of the Vectian bathing localities. Freshwater Gate is about a mile and a half from the church, and Alum Bay is about double the distance.

The little bay of Freshwater Gate is bounded on the north by a low beach of very small extent, just affording room for two or three bathing-machines, and a few boats, which may be hired by the visitors. On the west side it is bounded by the lofty cliff, called Freshwater Cliff, the loftiest in the island, bearing on its noble headland what is termed the beacon, a sea-mark. This cliff is about 600 feet high, and the downs to the north of it are covered with the closest, shortest, and most nutritious vegetation. The cliffs of Afton Downs enclose the east part of the little bay. The walk along the sea is limited to less than half a mile. The cliffs approach the deep water, and bar all approach to their base except in boats. This is the case all the way round by the

Needles, from Freshwater Gate to Alum Bay. The cliffs can only be viewed from the sea.

The waves are making steady and progressive inroads on the land; and the narrow beach between the sea and the source of the Yar is so low, and composed of materials which the constant surf might gradually remove, viz. shingle, that a communication between the sea, on the south, and the Yar, may be expected ere long to take place. By such a change, which a very high tide, accompanied by a strong south wind might effect, all the land of the island to the west of the Yar would be detached from the mainland of the island, and form by itself a separate and independent isle. The river Yar might eventually become a channel or strait uniting the sea on the south to the Solent on the north. It is highly probable that the whole island was in bygone ages thus separated from the Hampshire coast. A river similar to the Yar might then have existed, flowing from near Hurst Castle, in the same direction as the Solent now flows, viz. from west to east. The barrier on the west may have been removed by causes which are now in operation at Freshwater Gate, and which sooner or later will produce similar results.

There are two large hotels at Freshwater Gate, viz. the 'Albion' on the beach, and 'Plumley's' on the cliff. There are also a few tenements occupied by the boatmen and bathers. A more congenial sojourn for those who seek or require a bracing or tonic climate could not easily be found even in the Isle of Wight. The walk along the cliff, either in the direction of the Needles westerly, or on Afton Downs, towards Motestone Down, is extremely exhilarating. Even in the wettest weather, exercise, either in walking or riding, may be enjoyed on the downs; for the herbage is so short, so closely cropped by the sheep, that the moisture from the vegetation could scarcely wet the welt of a thick-soled shoe. Excepting a furze-bush which grows here and there, there is no species of plant here suffered to attain the height of half an inch. The views from the Beacon above Freshwater Gate, and from the downs above the Needles Lighthouse (a hundred feet lower than where the Beacon is erected) are extensive, especially in moist weather, when evaporation does not much prevent distant objects from being distinctly seen. Portsdown Hill, beyond Portsea, with its chalk quarry, is very conspicuous on the north-east. The whole or greatest part of the New Forest, from Southampton, by Ringwood, Lymington, and Christchurch, is distinctly visible. The high ground in the neighbourhood of Salisbury may be seen, and, as the lighthouse-keeper informed me, the spire of Salisbury cathedral is occasionally, though obscurely, seen. The prospects over the island, the Solent, and the sea are, of course, distinct and extensive. The botany of Freshwater does not present any remarkable nor attractive feature, excepting merely its stunted or dwarfish character, and this is characteristic of the botany of all places similarly situated. The wild Carrot, which in the places of its ordinary growth is usually one or two feet high, is here scarcely an inch long, yet it flowers and seeds. The Bellflower (*Campanula glomerata*) is barely an inch high, with only a single flower, or with two at most. There is a variety of the Bitter Gentian (*Gentiana Amarella*) with four segments in the calyx and corolla. This plant in most localities has the calyx and corolla five-parted. The cliffs produce *Lavatera arborea* (Tree Mallow) and *Matthiola maritima* (Sea Stock). Fragments of both may be seen among the usual *débris* of the rocky shores. They are mostly inaccessible, except to the cliff-men, who gather the eggs of the sea-birds which breed in the crevices of the chalk rocks.

The distance from Freshwater to Yarmouth is four miles by land and two by water. A scull-boat may be hired from the former to the latter place for a few shillings, and the passage occupies about three-quarters of an hour. The sail or row along the water is pleasant enough in fine weather, but possesses no features of interest to the tourist. The ancient borough of Yarmouth is built entirely on the eastern side of the Yar, on the extremity of a narrow isthmus or tongue of land, which is bounded by the Solent on the north, by the Yar on the west, and by a small brook, which becomes a large lake when the tide is high, on the south. The only land approach is by the east, along a narrow sandy or shingly beach, which at very high tides is covered with water, and then the town of Yarmouth is insulated. There is a ferry on the west, affording a communication with Freshwater, Sconce Point, Totland's Bay, etc.

The harbour is defended by a small fort, with a few guns mounted, under the charge of a master gunner. A few ships are employed in the supply of coals to the inhabitants, and in exporting the Alum Bay sand, which is extensively employed in the glass-manufactories of different and distant parts of the kingdom. The town is a poor place; its mean appearance belies in no respect its real condition. Although formerly a Parliamentary borough, and still a corporate town, it has only one butcher's shop, and this solitary shop is only open for the sale of meat on Saturdays. Its few shops are of the kind usually met with in country villages, where everything is sold, from bread and groceries to toys and mouse-traps. Cloth, stationery, drugs, door-mats, gingerbread, liquid blacking, snuff, and cigars, may be sold at one of these *omnium-gatherums.*

The whole population is seafaring or dependent on the sea, and appears to be superlatively indolent, indifferent, and uncourteous.

The ecclesiastic and civic buildings are mean and tasteless. The only prominent edifices are the church, conspicuous for its lofty square tower and the ugliness both of the exterior and interior of the fabric, and the modern residence of Sir Wm. Symonds, which at a distance has a castellated appearance, but which on a nearer view proves to be a cottage-like building, surmounted with two or three towers of no assignable style. The 'George' hotel, a tall, high-roofed, brick edifice, white-washed at no very distant date, but now appearing partially in its true colours, is the only noticeable building in the town. It is said to have been, two centuries ago, the residence of the Governor of the island, who had the honour of entertaining King Charles II. under this roof.

The town is, however, conveniently situated for transit, as steamers cross to Lymington several times a day, and to Cowes, Ryde, and Portsmouth several times a week. It is also a good centre from which the adjacent coast may be examined, and its botanical rarities will amply repay the labour of looking for them. Sconce Point, where the fort and barracks or garrison are building, is within little more than half a mile of the ferry, and Colwell Bay is about a mile further, where a second fortress is proposed to be built.

Totland's Bay is the next object, and its southern headland forms the northern side of the celebrated Alum Bay.

Beyond Sconce Point, proceeding onwards to Colwell Bay, there is a repetition of the famous undercliff at Ventnor, though in miniature. The basis of the upper strata, which is marly, is a gaultish oozy clay, and, when soaked by the sea and land-springs, gives way, and partial landslips take place. By these, successive terraces of small dimensions are formed, and the whole surface of parts of the Sconce Point headland is broken up into detached masses, separated by greater or smaller fissures. Much of this is scattered on the sea-beach, and renders a walk along the shore tedious, toilsome, and in some parts dangerous; for the softened clay admits the foot and adheres to it like gum, and the more exertion used to extricate one foot, the deeper the other sinks in the miry slough.

At Yarmouth, on both sides of the Yar, is found in plenty the rare Grass *Spartina stricta;* also, near the mill, *Tamarix gallica* (Tamarisk-shrub). In a ditch and on a bank, almost in the town, grows Borage (*Borago officinalis*). *Lycium barbarum,* an exotic commonly called the Tea-plant, grows in the greatest profusion and luxuriance. *Linaria purpurea* and a *Coronilla* are common weeds in gardens. The Myrtle, the Fuchsia, and the lemon-scented Verbena, as it is called, grow in the open air, and flower beautifully. Hydrangeas and Geraniums are also cultivated in the open border, and require no protection except in very severe winters. *Iris fœtidissima* abounds in the copses and hedges, so does *Rubia peregrina* (Madder). *Hypericum calycinum* is found here and there, and appears likely to retain its position. Marsh Mallow grows in every saltmarsh, and Asparagus is common on the sandy beach opposite Yarmouth; Fennel is also found here, though more sparingly than the former. *Convolvulus Soldanella* (Sea Bindweed), *Cakile maritima* (Sea Rocket), and *Psamma arenaria* (Marram, or Sea Reed) grow abundantly in the same place. *Hyoscyamus niger* (Henbane) grows on rubbish about Sconce Point, and beautiful minute specimens of *Erythræa pulchella* (Centaury), *Gentiana Amarella,* and *Spiranthes autumnalis* (Lady's Tresses) grow on the downs above the sea.

VECTENSIS.

DERIVATION OF BOTANICAL NAMES.

To the Editor of the 'Phytologist.'

Some of your readers may not be aware of the deficiencies of botanical dictionaries in general, and of Paxton's 'Botanical

Dictionary' in particular. To prevent disappointment, I will enter a few of the deficiencies of the latter in the derivations of the names of our British plants.

It does not profess to give the origin or etymology of specific names, though there is as much trouble in accounting for their application as there is in the case of the names of the genera. We have no reason to find fault with this, nor should we find fault with the omission of several names of genera and orders; we only draw attention to the fact to prevent disappointment.

There are here entered only a specimen, or such words as were looked for and were not there. These are not all the deficiencies, but only such as I noticed. Several new names, given to new things, are necessarily absent, because neither the plants nor the names were known here when the work was published, nearly twenty years ago. The following are names of an older date. Some of them are in Paxton, but are not explained, viz. *Athyrium, Arnoseris, Blysmus, Ceterach, Gymnogramma, Honkenya, Lastrea* (*Lepigonum?*), *Lentibulaceæ, Lepturus, Mulgedium, Monesis, Obione, Oporinia, Onagraceæ* (*Simethis?*). These are given as a sample, not as a complete list, which would be a laborious work and of no use. *Anacharis* was unknown when the 'Botanical Dictionary' was published, and possibly one or two of those in the above list.

It is to be hoped that some learned reader of the 'Phytologist,' who has leisure, will at a future time supply the deficiencies of Sir Joseph Paxton's 'Botanical Dictionary.' It would be desirable that the specific as well as the generic names should be explained in connection with their etymology.

I am, Sir, yours, etc.,

ANONYMOUS.

ON MURAL OR WALL PLANTS.

A few remarks on wall plants will not perhaps be impertinent, especially as one of the objects of the 'Phytologist' is to give a series of articles on the habitats of the British plants. A preliminary remark on the exact sense in which "habitat" is employed may be useful to the younger readers, of which the number is expected to increase. The veterans in science, who honour the journal with their notice, will excuse it, as it is meant to help *their* juniors to fill up the gaps which time and casualty make in *our* ranks. *Habitat* is from *habito,* "I dwell," and is employed by botanists to signify the sort or kind of locality where the plant usually grows, the soil, exposure, shade, moisture, dryness, or any other quality of the place. The terms *station* or *locality* denote the precise place where a species is to be found, and the latter term is used in preference to the former, which is now popularly applied to *railway stations.* For example, the habitat of *Hottonia palustris* is *aquatic,* because it grows in water or in watery places : this is general; whatever the specific locality be, the plant is found only in water. Locality is special : it indicates the precise place or places where the said plant grows; not in every place where there is water, but only in some particular places, as Streatham Common, near Tooting; Letchmere ditches, in Battersea-fields; near Woking town, on the road to Clandon, etc.

It is not intended to give a complete list of mural British plants, but to notice some of them in a cursory way. Another preliminary remark is necessary, viz. that few or any plants (phænogamous plants only are to be understood, though probably other plants are in the same category) are exclusively confined to walls, or to walls and roofs, or to walls, roofs, and ruins. Most of them are to be found in other places, and some of them in several very dissimilar habitats. Many Grasses are *mural,* but none of our British Grasses are exclusively so. *Poa annua, P. pratensis, P. compressa,* etc., are found on old walls, though they grow also on the ground. Several Festucas and Brome Grasses select walls even in preference to soil. *Carices* (Sedges) do not grow on walls. From this it may be inferred, that fibrous-rooted plants, which the Grasses are, find on walls a habitat adapted to their economy, and also that thick or fleshy-rooted, or creeping-rooted plants, as the *Carices* are, do not find on walls a habitat suited to their necessities. There are apparent exceptions to this law. *Echium vulgare* abounds in light sandy fields, where it shuns walls. In better soil, it prefers a mural situation, where it thrives equally well. *Cerastium triviale* grows on walls, on dry exposed banks, by roadsides, in pastures, and in boggy places, among rank vegetation, where it is very luxuriant. The *Linarias* supply us with several instructive examples of a diversity of habitat among the same plants. *L. vulgaris* is specially a hedge (septal) plant, but it is not confined to banks and hedges. It flowers beautifully on walls, where, however, it does not grow quite so luxuriantly as in its more usual habitat. *L. purpurea* is another example. This plant has only recently been recorded as a British spontaneous production, and its recorded habitats are walls. We have seen it on walls and on roofs for several years, say twenty-five or thirty years; but we believe it has been noticed as a weed in gardens, especially in the Isle of Wight. It may be assumed that if the plant was introduced by design, its first habitat with us was the garden, where it was cultivated as an ornamental plant; hence it probably migrated to the walls. It may be assumed that this migration was accidental. It is difficult to conceive how it could have located itself on walls, if its introduction was accidental. As it is one of Miller's plants, either a plant introduced or patronized or first noticed by him, and as he was at that time the greatest floriculturist in this country, it is not improbable that it owes its distribution in this country chiefly to him. There are few examples of its spontaneous growth except on walls. It is not in the Flora of Germany, nor in that of the north and centre of France. Hence it may be said to be a plant of the south of Europe. It was not noticed among us until a recent period, and as a spontaneous product only within the last thirty years or so. It may be said to be a mural plant among us.

We have another plant of the same genus, *L. Cymbalaria*, which appears in this country to be restricted to walls. It is said by Dillenius to be an escape from Chelsea Gardens, and it is very probable that the plants of this species about London, did owe their origin to this original locality. We should like to know how this plant was preserved or cultivated in Chelsea Gardens. Was it a border flower, a rock plant, or was it kept in pots? The plant in question was known and recorded as a denizen of this country nearly two hundred years before the publication of Dillenius's edition of Ray's 'Synopsis,' where this plant is noticed, and long before the existence of Chelsea Gardens. It grows in the same habitats on the Continent as here. In the 'Flore d'Alsace' its habitat is thus described, "Trèscommune dans les murs de fortifications de Strasbourg;" in the 'Flore des Environs de Paris,' "Vieux murs humides" (our habitat exactly); in the German Flora, "Auf alten Mauern, selten" (on old walls, rare). Its establishment in Britain was effected at least three hundred years ago, probably more; but in all this time it has evinced no disposition to change its habitat; it clings to walls and ruins, and eschews banks and trees. It may naturally be asked, What is the native country of this plant? It grows all over the central and southern parts of Europe, and everywhere on walls. Every recent writer on British plants, including Hudson, who wrote a hundred years ago, distinguishes this plant by a star(*), a mark which, as is well known, indicates that the plant before which it is set, is not originally of British growth.

Antirrhinum majus is found only as a semi-spontaneous growth on some walls. Here at least (in the south of England) it is not nearly so common as *Linaria Cymbalaria;* the places where it grows are not half so many, and the individual examples do not amount to a hundredth part of the number of the commoner plant. I have never seen it growing wild but on walls or on contiguous rocks. In this it agrees with *Linaria Cymbalaria*. But on the other hand it is frequently cultivated as a border flower, of which many varieties are handsome and popular. In the Parisian Flora it appears to be confined to the same habitats as with us; for example, "Assez fréquemment subspontané sur les vieux murs; cultivé dans les parterres." In Germany, "Auf und an alten Mauern, im Rhein- und Mainthale, in Oesterreich, Böhmen, etc." (old walls, Austria, Bohemia, etc.). Which country exclusively claims this plant? It appears to be equally common in England, France, and Germany. In neither of these is it to be found wild. Is there a fourth country where it is found wild? or is it found wild anywhere?

Epilobum montanum, like *Cerastium triviale,* grows sometimes on walls, as well as on open places, and in shady places, on spots either dry or wet. I have seen *Geranium pratense* on the very top of a limestone wall, very much altered in externals, but in all essentials the same as in examples of the rich meadow or roadside. It is probable that the two Pinks *Dianthus plumarius* and *D. Caryophyllus* have migrated from the border, bed, or parterre, and established themselves on the surrounding walls.

It is idle to speculate about the agencies whereby the seeds may have been conveyed from the garden to the garden-wall; this is not the point. What I wish to establish is, that they were transported from the garden, and not from a distant country. Another point is also forced upon us, viz. that, even in the south and centre of Europe, both these plants are described as garden plants, or as located on garden-walls. In the 'Flore d'Alsace' both species have the same habitats, viz. "jardins, murs." In the German Flora the habitat of *D. Caryophyllus* is thus stated: "In Gärten als eine sehr gewürzhaft riechende Blume häufig kultivirt" (cultivated in gardens as a very odoriferous flower); that of *D. plumarius* as follows: "Auf Kalkfelsen, Sandhügeln, etc., in Niederösterreich. In Gärten als schöne Zierpflanze kultivirt" (on limestone rocks and sandhills in Lower Austria; cultivated in gardens as a very ornamental plant). In Grenier and Godron's 'Flore de France,' *D. Caryophyllus* is said to be found "sur les vieux châteaux et les murs en ruines des provinces de l'ouest, depuis Bayonne jusqu'au Falaise:" the precise habitats where the plant is found among ourselves, only it is not so extensively distributed here as in France. The limestone rocks and sandhills of Austria are the only natural habitats for *D. plumarius*, and there are none for *D. Caryophyllus* from the south to the north of Europe. Are they European, or African, or Asiatic plants? Or are they, like *Borago officinalis, Antirrhinum majus, Linaria Cymbalaria*, and several other plants, "terræ nullius adstrictæ," fugitives, and disowned by every land? Examples need not be multiplied, yet they are useful to teach us caution in adjudicating on the claims of the nativity of plants. The example however of *Sinapis tenuifolia* is instructive. This plant, in the valley of the Thames, especially at no great distance from the river, is very common. And here it may be called a *viatical* plant, viz. growing about waysides, waste places, and on rubbish. Here it is rarely noticed on walls. (Is it ever?) The Wallflower here is the common ornament of walls. The *Sinapis*, however, adorns the old wall or portions of the old wall at Southampton, and it is said to be the common mural plant of the ancient city of Chester. Its name Wall-Rocket indicates its mural habitat. It would be worth while to notice if in those places where it grows on walls it shuns the ground. *Diplotaxis muralis* is rapidly extending its area in this neighbourhood (London), but it is never noticed on walls. It is a mural plant in some countries. Probably it may become mural here when it finds no more suitable habitat amongst us. *Sinapis arvensis* is a rare mural plant, but it is occasionally noticed on walls. *Meconopsis cambrica* grows on walls and roofs in Yorkshire, as well as by waysides. Does it grow on cottage walls and roofs in North Wales, where it profusely ornaments the steep ledges of rocks, and almost every place which is beyond the reach of the mountain sheep? *Chelidonium majus* is found both on walls and in shady places near habitations. The mural state is less common than the other is. The Wallflower is the last example we shall quote. In its wild state this plant is exclusively confined to walls, roofs, or ruins; we believe it is never seen in this island in any other situation. It is a mural plant in the north, the middle and south of Europe. And it is only known as a wall plant in Asia and Africa?

It agrees exactly with the Snapdragon (*Antirrhinum majus*) and with the two Wall-Pinks (*D. plumarius* and *D. Caryophyllus*) in being both a wild and a cultivated flower. It differs from all three in having a larger area of distribution in Britain, and in being more plentiful where it is found. It is no assumption that the plant in question originated somewhere, it is a fact. Everything that is, began to be at some period and in some place or places. Was this one of the plants originally created in the Garden of Eden? Who can answer this in the affirmative? It would be safer to doubt this fact than to deny it.

THIRSK NATURAL HISTORY SOCIETY.

Botanical Exchange Club.

The monthly meeting of the Thirsk Natural History Society was held on the evening of Wednesday, the 7th instant. Mr. Peter Davidson, of Thirsk, was admitted a resident, and the Rev. W. M. Hind, of Bayswater, and Mr. H. Ibbotson, of Dundee, corresponding, members of the Society.

Mr. J. G. Baker gave an account of an excursion to Halnaby Carr, in search of *Eriophorum gracile*. The locality is a boggy, moory piece of ground, thickly covered with trees and brushwood, perhaps a couple of acres in extent, that lies on the left-hand side of the road, about a mile from Croft, on the way to Richmond. He had noticed both the common species of Cotton-grass, but was not able to find that for which he principally went in search. *Ranunculus Lingua, Pyrola rotundifolia, Carex teretiuscula* and *stricta* were met with, and also *Hypnum nitens* and a large quantity of *H. Blandovii,* some of it in fruit. For the latter this is the fourth ascertained British station. He exhibited specimens of these, and also of a *Papaver* from the vicinity of Thirsk, with a subrotund capsule, which he considered to be either a variety of *dubium* or possibly a hybrid between *dubium* and *Rhœas.*

Mr. J. H. Davies exhibited specimens of *Tortula papillosa* recently gathered by himself at Fuller's Court Garden, near Ballitore, co. Kildare, and communicated the remainder of Dr. Carrington's paper on the British *Orthotricheæ,* which was profusely illustrated by specimens and drawings.

Mr. W. Foggitt exhibited specimens of plants from Newsham Carr, a boggy piece of ground on the east side of the river Wiske, four miles west of Thirsk, *Cicuta virosa, Ranunculus Lingua, Rumex Hydrolapathum, Carex teretiuscula* and *stricta. Lemna polyrrhiza* was also noticed at the same locality; and he laid upon the table examples of *Jasione montana* from Howe Carr, near Sandhutton, a plant new to the Thirsk neighbourhood.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Perth Plants.

The *Moneses grandiflora* in the wood of Scone here, is almost extirpated, and no wonder: the Edinburgh students devour every "green thing." The *Scheuchzeria palustris* in Methven Bog I have just gathered. It is sparingly distributed over a small bog of about a quarter of an acre in area. The *Cynoglossum sylvaticum* is plentiful here in one locality. I intend to collect some presently, as it is now both in flower and seed. There is one plant here which to all appearance is naturalized, at any rate has been in the locality where it is found for a great many years; I make it the *Potentilla hirta?* It is a strong plant, hispid, and bears the flowers in a panicled corymb much the same as in *P. argentea,* which here grows along with it. The radical and lower stem-leaves are seven-cleft. I enclose a recent specimen gathered today; it is only a branch, but I enclose a base-leaf. I beg you will give it your attention, and give me an early reply. Its locality is near to an old quarry, on very dry ground, and scattered over about two hundred yards. John Sim.

SYNOICOUS.

There is some discussion in the last number of the 'Phytologist' as to the necessity for this term. Wilson, in Bry. Brit. p. 432, gives the following definition of it as distinguished from "monoicous" and "dioicous:"—*Synoicous:* antheridia and archegonia *on the same receptacle. Monoicous:* barren and fertile flowers *on the same plant*, but *not* on the same receptacle. *Dioicous:* barren and fertile flowers on distinct individuals." So that the term refers especially to the peculiar disposition of the male and female organs in Mosses.

In some species, *e.g.*, *Bryum intermedium*, the antheridia and archegonia are found mingled together in the same perichætium; in others, *e.g.*, *B. pallescens*, the archegonia and antheridia are still found on the same stem, but enveloped in separate floral buds. By the old nomenclature, both forms would be called "monoicous;" but practically this difference of inflorescence is found of great value in distinguishing species. Hence the necessity for a name to indicate the peculiarity.

The only question therefore appears to be, whether "synoicous" or the ugly term "hermaphrodite" should be preferred. B. C.

SPARGANIUM NATANS.

Sir,—My attention has lately been drawn to the species of *Sparganium*, about which, as you are aware, there has been much difference of opinion and no little controversy. In Hooker and Arnott's 'British Flora' (ed. 7), *four* are given, their *natans* being that of Linnæus, whilst they adopt the name of *minimum* for the *natans* of Smith. I have not found any plants exactly agreeing with their description of *minimum*, but have some which seem to answer in every respect to the *S. natans* of Linnæus. Now as I saw these growing in abundance in a shallow pool in the county of Surrey, whereas Hooker and Arnott limit its locality to Scotland and Snowdon, adding that they have seen no specimens of it, I was led to make more minute examinations of the forms and habitats of such of the described species as had come under my notice, and am much inclined to think that the differences are not so much specific as arising from the conditions of growth, such as depth of water, richness of soil, etc. A friend of mine, who lives close to the spot whence I obtained the *S. natans*, and has the other two, called *simplex* and *ramosum*, also growing near his house, is going to transplant them, and carefully keeping them from any intermixture, will watch if any change takes place in them; and it has been suggested to me by one of the authors of the 'British Flora' to make this communication to you, that should you think it worthy of being inserted in the 'Phytologist,' some of your readers who have the opportunity may be induced to make similar experiments, and assist in clearing the difficulties and removing the doubts which still surround these plants.

Cleveland Terrace, Hyde Park, W. J. E. HALL.

ORIGIN OF SPECIES.

It appears from the German extract, p. 415, vol. ii. N.S., that Professor Koch did not believe in the doctrine that there was only an individual plant of the perfect Orders, viz. *hermaphroditæ species* and Monœcious species, and two plants of the Diœcious kinds, as there was only a single pair of human creatures originally created. This throws some doubt on the modern doctrine of centres of vegetation and types of distribution, unless we are to assume that the Professor believed that there were numerous plants of the same species originally created and placed by themselves, and that they extended their range by inroads on the domains of their neighbours, as the ancient Campbell clan preferred settling on the very verge of their legitimate properties, in order that they might enlarge their bounds at the expense of their neighbours. Linnæus, if he was the author of the opinion that only single individuals were originally created in the vegetable kingdom, probably adopted this view because a single fertile plant would in time have covered a large space of land if it had been left unmolested or uncropped,—a rather doubtful conclusion when it is considered that the majority of animals live on herbaceous food. One species would have been able to afford but a short supply, short commons, to numerous pairs of original animal species. Perhaps the illustrious Swede was seduced by the analogies that exist here and there between the two organized kingdoms of animals and vegetables. I. A.

Sir,—On the 29th ult. I gathered *Polygonatum multiflorum* near Storthes Hall, but am inclined to think it is not a native plant in these parts, but an escape from some garden. There were only one or two plants, and those quite local. On the 5th June, in a hedge at Birkly, I found *Lonicera Xylosteum,* a doubtful native, yet I am assured that "it has been there at least fifteen years, probably much longer," and that sprigs were taken from there and planted in a garden near, some ten or twelve years ago. I will make further inquiries. I observe in the "British Plants" you give Sussex as the only locality, and that only "said to be:" I fear this one can scarcely lay claim even to so uncertain a tenure. *Linaria Cymbalaria, Stellaria nemorum,* and *Botrychium Lunaria* are also found sparingly in this neighbourhood. (*From Huddersfield.*)

HYPERICUM PERFORATUM AND H. DUBIUM.

In the 'Phytologist' for June, 1858, Mr. Gissing states that he has *invariably found in* H. dubium *a row of black dots round the margin of the leaves, appearing in contrast* to the other part of the leaf, but this feature he has never seen on the leaves of the *H. perforatum.* In examining the *H. perforatum,* I have *always found* these black dots *on its leaves,* and which have also been noticed by Hooker and others (see note in 'Phytologist,' September, 1857). If Mr. Gissing's observation is correct, it would appear that *both species* have black dots *on the leaves.* Mr. Curtis, in 'Flor. Lond.,' observes "that a little black gland on the anthera distinguishes the *H. perforatum* at one view."

This plant was in great repute with the ancients, who prescribed it in hysteria, hypochondriasis and mania. They also imagined that it had the peculiar power of curing demoniacs, and hence it obtained the name of *Fuga dæmonum.*

The dark puncta of the petals and the capsules afford an essential oil, which is contained in the minute vesicles or glands. This oil has been long known by the name of *Oleum Hyper.* H. B.

OAK-LEAF FUNGUS (?).

In the 'Phytologist' for last month (p. 447), S. B. has a few observations on the Oak-leaf Fungus (?). Having been favoured with a specimen from S. B., I have no hesitation in saying that the supposed Fungi are the productions known as "Oak-spangles," and figured in Lindley's 'Vegetable Kingdom,' p. 31, where they are stated to be described by Curtis in 'Gardeners' Chronicle,' 1843, p. 52. I have no doubt that if S. B. examines the little spangles at the proper season, he will find larvæ in them. A. JERDON.

LINARIA MICRANTHA.

A plant of the south of Europe was seen at the time and place undermentioned:—A small, upright species was found in June–July, 1838, on a wild, uncultivated bank, amongst heath, furze, etc., by the side of the road leading from the Lodge of Felbrigg Park to the Holt road, about two miles from Cromer, Norfolk. It grew about four to six inches high, and the flowers were small, white. Query: Has any one since found it there? M. H.

NOTICES TO CORRESPONDENTS.

A fair correspondent is thanked for a box of Himalayan Lichens. They will be examined as soon as possible.

The Editor of the 'Phytologist' has the pleasure of acknowledging the receipt of an article "On the Fertilization of Incomplete Flowers of some Species of *Viola*, communicated by Daniel Müller, of Upsal." The translation of the above-mentioned will appear as soon as we can get the illustrative diagrams engraved. We also beg to thank our unknown and, as we believe, fair correspondent for the interesting communication; also the proprietors of the 'Phytologist' heartily thank her for the interest she takes in the usefulness and success of the Journal. We hope, now, that our fair continental friend will oblige us with her name and address.

Communications have been received from

John Windsor, F.L.S.; W. Sutherland; A. M.; Sidney Beisly; Rev. W. M. Hind; Rev. J. E. Hall; H. C.; Rev. M. M. Attwood; Querist; J. G. Baker; John Sim; B. Carrington, M.D.; A. G. More, F.L.S.; Henry Holmes, M.D.; Veritatis amans; Vectensis; Anonymous; M. H.; A. Jerdon; F. C.; H. B.; I. A.; W. P.; S. B; John Jones (Llandderfel); W. P. Williams.

BOOKS RECEIVED FOR REVIEW.

The Friend; a Monthly Journal devoted to religious, moral, and social progress.

The Critic; a Weekly Journal of Literature, Art, Science, and the Drama.

The Natural History Review and Quarterly Journal of Science.

Sowerby's British Wild Flowers illustrated. No. 1.

Papers read to the Botanical Society of Edinburgh. By G. Lawson, M.D.

The Worcestershire Journal; etc., etc.

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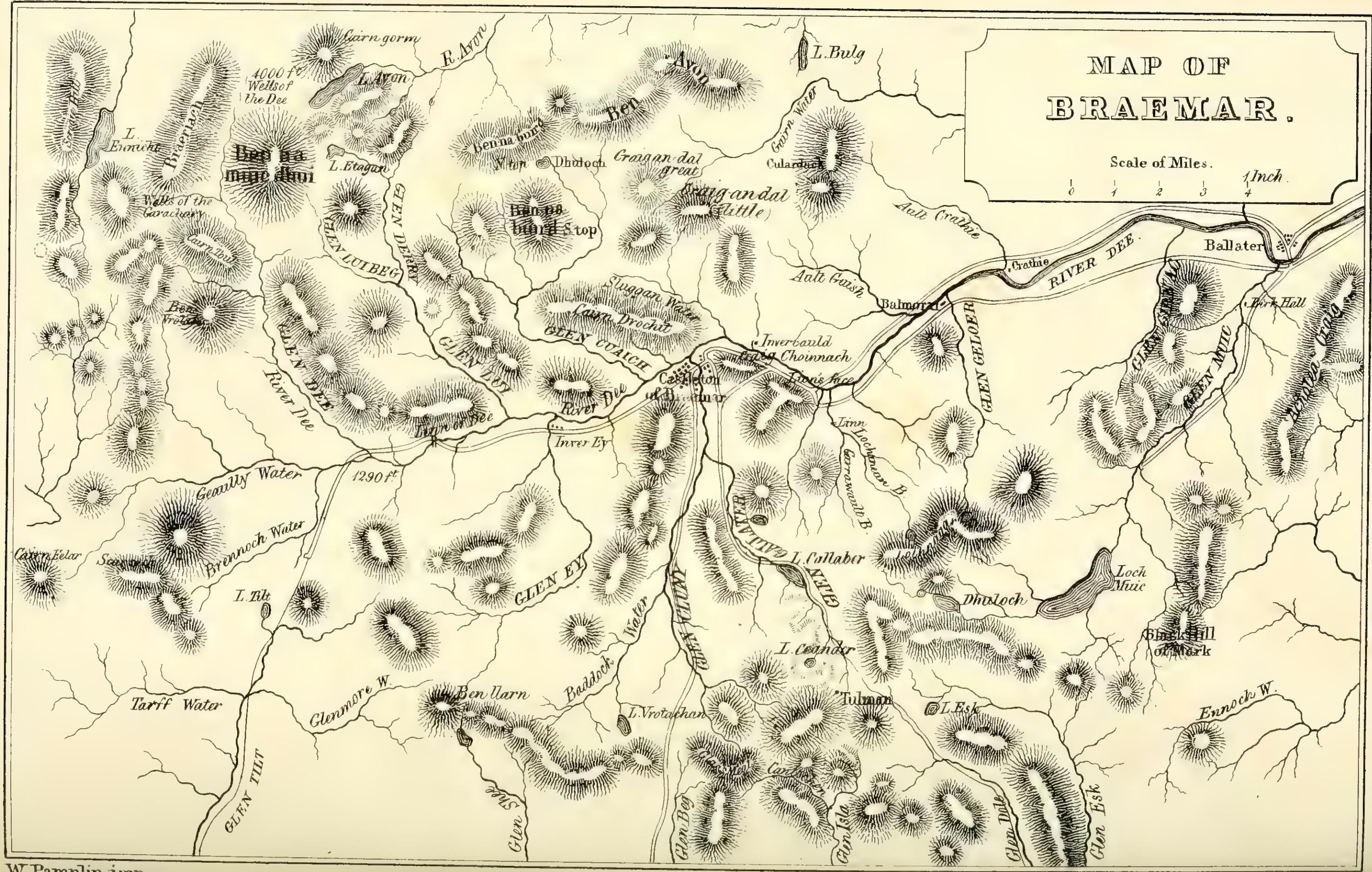
MAP OF
BRAEMAR.
Scale of Miles.
0 1 2 3 4
1 Inch
L. Bulg
Cairn gorm
R. Avon
L. Avon
4000 ft
Wells of the Dee
Ben Avon
Ben na bourd
L. Einicht
Braeriach
Ben na muic dhui
L. Etagan
Dhuloch
Craigan dal great
Craigandal (little)
Gairn Water
Culardach
Aalt Crathie
Ballater
Wells of the Garachary
Cairn Toul
Glen Luibeg
Glen Derry
Ben na bourd S. top
Crathie
River Dee
Aalt Guish
Balmoral
Ben Vrotan
Sluggan Water
Cairn Drochit
Glen Cuaich
Glen Lui
Glen Dee
River Dee
Linn of Dee
Invercauld
Craig Choinnach
Castleton of Braemar
Lion's face
Birk Hall
Glen Geloer
Glen Muic
Inver Ey
1290 ft
Linn
Lochnean B.
Garrawault B.
Geaully Water
Brennoch Water
Cairn Eelar
L. Tilt
Glen Ey
Glen Callater
L. Callater
Lochnagar
Loch Muic
Dhuloch
Water
Glen Cluny
Black Hill of Mark
L. Ceander
Baddock
Ben Uarn
Tulman
L. Esk
Ennoch W.
Tarff Water
Glenmore W.
L. Vrotachan
Glen Tilt
Glen Shee
Glen Beg
Glen Isla
Glen Dole
Glen Esk

W. Pamplin imp.

J. Barton del.

DOVEDALE.

By the Rev. W. M. Hind.

Dovedale is classic ground. Were its romantic scenery less enchanting, it would still retain a place among the notable nooks and corners of Old England from its association with the name of good old Izaak Walton. It is still the loved resort of the votaries of the gentle art. The painter and the tourist still frequent it to gratify their love for the picturesque, and have not to mourn over there, as in Matlock Dale, the native beauty of the scenery disfigured by the hand of man. Not unfrequently the botanist visits the lovely valley, and finds a fresh enchantment in the scene, from his being able to decipher to some extent the hieroglyphics in which the Divine Architect has written his own praise and glory in the vegetable covering of the rocks. My first visit to Dovedale was in August, 1849, where I spent a portion of two days. In June, 1856, I repeated my visit, which, after one afternoon's exploring, was cut short by a heavy rain. The plants which I observed on these occasions are the proper subject of this paper. Those of my readers who are acquainted with Dovedale will forgive me, I trust, when I state, for the benefit of such as have not yet visited the spot, that this dale is situated in the counties of Stafford and Derbyshire, the bright-flowing Dove being the boundary between the counties. On the Staffordshire side of the entrance to the dale stands the comfortable and commodious hostelry of the 'Izaak Walton.' On the same side, proceeding northwards up the dale, are the steep eminences of Bunster, Ilam Tops, and Hurt's Wood. On the Derbyshire side stands, in the foreground, as the giant guardian of the valley, the lofty Thorp Cloud, a commanding conical hill, which may be seen some thirty miles off to the south. North of Thorp Cloud stand the heights of Sharplow, Cromwell's Low, and Baley Hill.

I have but little to record of the floral treasures of the Staffordshire side of the dale; not, I believe, that there is any lack in this respect, but simply because it is not so easy of search. The naked steeps of Bunster are almost wholly inaccessible. At the foot of this hill, however, I found *Hutchinsia petræa*, Br., abundant, *Geranium columbinum*, L., *Calamintha*

Acinos, Clairv. (both of which are found in great plenty on the heights of Cromwell's Low); also *Geranium pusillum,* L., *Vicia lathyroides,* L., *Linaria vulgaris,* Mill., *Glyceria rigida,* Sm., and *Festuca ovina,* L. Ilam Tops and Hurt's Wood are covered with plantations, and being enclosed with a dry stone wall and locked iron gates, seemed to be forbidden ground. I ventured within the enclosure notwithstanding, but found, on leaving the carriage-drive, that the ground was both difficult and unproductive, so made the best of my way across the river, carrying little with me in the way of spoil except a frond or two of *Polystichum aculeatum,* Roth.

On the Derbyshire side, Thorp Cloud offered me no reward for my toil in scaling its summit, save a bracing, healthy breeze, and a splendid and extensive prospect. The limestone rocks at its north-western base proved tolerably productive. Besides several Mosses and Lichens, there was, on occasion of my first visit, an abundant supply of *Silene nutans,* L., but getting into seed. In June, 1856, the plants were not sufficiently forward to obtain specimens for the herbarium. *Saxifraga hypnoides,* L., was abundant June 18, 1856, but the flowers had nearly all fallen. In this part of the dale *Cystopteris fragilis,* Bernh., was most abundant, a few of the plants approaching the *C. angustata,* Sm., *Asplenium Adiantum-nigrum,* L., and, growing on the native rock, *A. Ruta-muraria,* L. I was sufficiently fortunate to find—so far as I can make out—a new locality for *Polypodium calcareum,* Sm., of which I found no more than one small plant. At the foot of the north-eastern slope there is a small rivulet dividing Thorp Cloud from Sharplow. Close to this I gathered *Sagina nodosa,* Mey., and *Triglochin palustre,* L. At the foot of Sharplow *Allium vineale,* L., is found in great plenty, but on occasion of my last visit it was in too juvenile a state to secure more than two good specimens. On the slope above, *Orchis Morio,* L., and *O. mascula,* L., are tolerably frequent, and, if my memory does not deceive me, *Habenaria bifolia,* Br. *Polygala vulgaris,* Br., and *Anthyllis Vulneraria,* L., with other still more common plants, were in rich profusion about the same spot. Turning up the dale, at the foot of Cromwell's Low, growing either on or among the limestone rocks, I observed *Rhamnus Frangula,* L., *Hippocrepis comosa,* L., *Pyrus Aria,* Sm., and *Cornus sanguinea,* L. There were also some *Hieracia* that had found a secure home for themselves in the more inaccessible parts of the rocks, where one could only guess at their specific names. Having passed Reynard's Hall and Kitchen, the Church Rock, Pike, and Dove Holes, and other salient or notable features of the dale, I found on an islet in the river a small forest of *Carduus heterophyllus*, L. I searched for, and did not find, *Convallaria majalis*, L., which I understand grows near the Dove Holes; in any case I could have done no more than confirmed the witness of others, as its blooms must have passed at the time of both my visits. *Carex hirta*, L., and others of the same family, are to be seen in almost all parts of the dale. Among the Grasses, I noticed *Phleum asperum*, Jacq.?, *Avena flavescens*, L., *Triodia decumbens*, Beauv., *Kœleria cristata*, Pers., and a *Festuca* which I cannot identify with any British representative of the same genus. This may partly arise from the specimen which I obtained being still immature, but may be, most probably, very justly chargeable to my own want of skill.

I feel well convinced that the above very meagre account most imperfectly represents the Flora of Dovedale. I had fully purposed, on occasion of my last visit, to have given another day to a fuller search after the floral treasures of this lovely valley, but after waiting a day, and finding the weather still unpropitious, was compelled to beat a retreat. After all, I was not so badly off as a fellow-traveller who arrived in the evening, after the rain had commenced, and the next morning, after making a vain attempt, provided with cloak, goloshes, and umbrella, to get a sight of the valley, returned to the inn well drenched for his pains, and not much delighted with a close view of the thick mist which filled the dale.

Bayswater, *July* 14, 1858.

ON THE VERNATION OF THE BRITISH FERNS.

By JOHN LLOYD.

The vernation of the British Ferns is sometimes considered as collateral evidence in marking the distinctions between nearly allied species. The following observations were made upon the 13th of May last, and the plants named were growing together in a north border, where they are all exposed to similar influences as to heat, soil, etc. The fronds measured belong to well-established, well-developed plants, and the border has been planted three years.

	ft.	in.
Osmunda regalis . . *in length*	1	10
Polystichum aculeatum		7
Polystichum angulare		8
Lastrea recurva	1	1
Lastrea dilatata	1	11
Lastrea collina	1	2
Lastrea spinulosa		9
Lastrea uliginosa		6
Lastrea cristata, quite close.		
Lastrea cristata, North America	1	4
Lastrea rigida		6
Lastrea Oreopteris		6
Lastrea Filix-mas	1	6
Lastrea Filix-mas Borreri, quite close.		
Lastrea Thelypteris		7
Polypodium vulgare, quite close.		

	in.
Polypodium cambricum, quite close.	
Polypodium calcareum	8
Polypodium Dryopteris	4
Polypodium Phegopteris	6
Asplenium Trichomanes	2
Asplenium Adiantum-nigrum	4
Scolopendrium vulgare	6
Cystopteris fragilis	8
Cystopteris dentata	4
Pteris aquilina, just beginning to appear.	
Athyrium Filix-fœmina	7
Athyrium Filix-fœmina, var. crispa	4
Athyrium Filix-fœmina, var. cristata	4
Athyrium Filix-fœmina, var. irriguum	4
Blechnum boreale	2

One of the most interesting facts to be deduced from the above observations is the very regular manner in which the spinulous section of the genus *Lastrea* rise with regard to each other, those which have the most divided fronds appearing first, and those with less divided ones following at regular intervals of about six days, so that when *L. cristata* rises, it may be said to be a month later than either *L. dilatata* or *L. recurva.* But what shall we say to the *L. cristata* of North America, which is rather less divided than our British species, yet is double its size, and is a month earlier in its vernation? This fact I can vouch for, having grown the two together for several years.

Another fact worthy of remark is the very great discrepancy between the common form of *L. Filix-mas* and the variety or species known as *Borreri;* the former began to unroll its fronds the last week in April, whilst the latter never exposed a single pinna before the 1st of June. I have three fine plants of *Borreri* and two of *L. Filix-mas,* all growing close together, and I have observed for several years that the difference in the time of vernation is a constant character. Other distinctions may be pointed out, and though they are none of them very great ones, they are all of them constant ones. To begin with them in their wild state, *L. Filix-mas* affects shady lanes and the banks of ditches, whilst *Borreri* is more frequently found upon a scrubby heath, or in a thinly-grown copse. *L. Filix-mas* is more lanceolate in outline and more attenuate towards the base of the frond; the pinnæ do not reach their greatest length until they get to the eighth or ninth pair from the base, whilst those of *Borreri* attain their greatest length at the fourth, or at furthest at the fifth pair; again, the scales upon the stipes and rachis of *L. Filix-mas* are not above half the number, and are of a much lighter colour than are those of its congener.

But the greatest difference of all is in their texture. *L. Filix-mas* is injured by the first sharp frost, becomes papery, and the fronds in winter are easily separated from the caudex; but those of *L. Borreri* are tough, wiry, and so persistent that they remain upon the caudex for two years, and cannot be separated from it without being cut.

NETLEY ABBEY.

The ruins of Netley Abbey are seldom left unvisited by people of cultivated taste who are sojourning at Southampton, even for a brief period, whether for business, relaxation, or recreation. The walk or drive thither is exceedingly pleasant. From Southampton the way to Netley Abbey is by the Itchin Ferry; pedestrians usually take the right-hand road by the water's edge. The carriage-way is somewhat longer; by the nearer, or foot-way (it may however now be traversed by a carriage), the distance is between two and three miles; and few places can afford, within that short space, such a combination of agreeable and suggestive scenery.

To the commercialist and cosmopolitan, the docks, filled with magnificent steamers and other craft, will present a scene of boundless interest. The historian will be reminded of the days when Alfred, one of the greatest and best of Albion's kings, swayed the sceptre, dispensing justice and patronizing literature only a short distance from the mouth of the river on which these great ships, which serve to unite the most distant parts of the globe, are floating. The same shore will remind him of Canute's reproof of his flatterers, a story which may be but apocryphal, yet, if true, a rare example of regal rebuke of toad-eaters.

From this port also embarked the gallant armies which, under

Edward III., the Black Prince his son, and Henry V., wrested their laurels from the proud armies of France, and laid the foundation of that superiority which all subsequent encounters between the forces of France and England have only confirmed. It will not be forgotten that at the period when this country was threatened with an invasion by the haughty Spaniard, this port furnished a quota of the brave men and gallant ships which effectually humbled the Spanish grandees.

But to the lover of the picturesque, the views along the shore of Southampton Water will furnish the greatest treat. On the right-hand the noble estuary stretches away south-eastwardly towards the Isle of Wight, and north-westwardly towards the centre of the New Forest; for many miles its breadth, even at low-water, is at an average above three miles. On the left bank, viz. that on which the abbey stands, and along which the visitor walks or rides, there is an extensive heathy moor, which occupies all that tract or peninsula which is bounded on three sides by the Itchin, the Southampton Water, and the Test, another small stream, but enlarged into a broad tidal river where it joins the main body of water.

This table-land is skirted along the waters by more or less steep declivities or hangers, which are fringed with wood, which sometimes descends to the salt water of high tides.

The opposite shore, about three miles from Southampton, is bounded by the New Forest, as it is called; and here the scenery appears very beautiful, as the trees approach the very verge of the tide, either fringing the water or dipping into it. The philanthropist and economist will be gratified with the contrast between the Forest in its present condition, and in its probable future. Both will remember that many a fire was quenched for ever; that many human creatures were deprived of their homes; that many a bold peasant became an outlaw and a felon; and that all this misery, physical and moral, was occasioned by the selfishness of those who purchased their gratifications at a heavy cost, but not at their own expense. The fearful retribution which overtook the Red King, William Rufus, the Conqueror's son and successor, who paid the penalty of his own and his father's rapacity, will not be forgotten.

The situation of the abbey-remains is very beautiful; not grand and imposing, as the site of Tintern Abbey, environed with majestic hills and bold beetling rocks, nor yet in a deep, secluded vale, like Kirkstall, near Leeds, but on a dry, airy spot on the extremity of the extensive heath, having the broad estuary in the background, and a fertile meadow between its front and the common before it.

Its history as a religious establishment terminated in the days of Henry VIII., who replenished the coffers of himself and favourites with the spoils of these noble monuments of ancient piety. It has no modern history, its occupants since the Middle Ages being the owl, the jackdaw, and the bat, or at best gipsies, who may have received but cold shelter and no entertainment on its damp earth-floors, under its arched, still existing roofs.

Trees of great girth and height have grown on the rubbish which covers the floors of the sacred edifices; deadly nightshade, nettles, and brambles, with other rank and bad-smelling plants, fill the area which was formerly trodden by men engaged in the worship and service of God, and whose dust is now concealed by the mouldering ruins and coarse vegetation.

The church, as usual, is the chief and most interesting part of these ruins; but it is not the most entire,—only the outer walls are standing, and time and weather have made serious breaches in them.

None of the internal erections, such as columns, arches, screens, or canopies, nothing either pertaining to the embellishment or the permanence of such an edifice, are now in existence. Huge lumps of stone, and mortar almost as hard as stone, are scattered about, enduring the slow but certain process of disintegration, whereby they are gradually converted into dust. The vegetation speedily covers these, and hence there are very considerable inequalities in the floor. The kitchen, with its arched roof of stone, is, with the exception of the windows, almost entire, and the refectory, which adjoins both the former and also the church, has, though roofless, its walls mostly entire. These two requisite offices are the least dilapidated portions of the buildings.

The inner walls, which surrounded the interior of the quadrangular court, are also still of considerable altitude, mostly ivy-clad, and some portions of them bearing lofty trees.

There are, besides these, several cloisters and halls, mostly enclosed by the ancient walls.

To a serious, contemplative mind, the reminiscences and associations connected with these ruins are not of a satisfactory nature. Without so much as mooting the question in reference to the utility of these institutions, their being consecrated to the worship of God and to the instruction of his children is a fact which cannot be gainsaid. Their present condition is a fact which testifies too painfully two things,—firstly, that the intentions of those who founded and endowed them have not been carried out, neither in the letter nor in the spirit; and, secondly, that edifices reared and property bequeathed, and both consecrated for holy uses, cannot be any longer so employed.

That their present state is irremediable does not render their ruin satisfactory. The antiquarian and man of taste may have their feelings and tastes gratified by the conservation of these remains, but the piously disposed would rather that such proofs of desecration had never existed, or that they were speedily removed. Proofs they are of the munificence of former times, when the noblest erections were devoted to religious and charitable uses; and also of the degeneracy of modern times, when the most sumptuous edifices are erected for the accommodation of private individuals. While, however, the piety of long-past ages is deserving of high commendation, it would be unjust not to notice the efforts made in our own age to supply the growing religious and moral wants of our rapidly increasing population. This, one of the most amiable tendencies of the present time, is favourably contrasted with that of the long past. Abbeys, monasteries, and other religious houses, were endowed too often, it is to be feared, with the spoils of oppression and robbery. According to the old proverb, men then stole the goose and gave the giblets in alms. A great part of Hampshire was depopulated, families dispossessed and turned adrift to starve, or to become at best the hangers-on of a proud, reckless chief, who, to palliate the crimes of which he had been guilty, and to procure a *salvo* for his conscience from the miserable conscience-keepers of those days, dedicated a portion of the fruits of robbery to the honour of Almighty God.

The botanist, if a dweller in our inland counties, will be gratified to observe and to collect some of the plants that appear in this charming walk. On the east side of the Itchin Ferry, adjoining the old-fashioned hamlet of Itchin, there is a plant of special interest, viz. *Spartina alterniflora,* which has not as yet been found in any part of England, the locality of Southampton alone excepted. It was discovered by the late amiable Dr. Bromfield about a dozen years ago. It grows on the mud-flats hereabouts; it is not, however, confined to the Itchin, but may be observed in large patches along the shore towards Calshot Castle, mostly unmixed with any other Grass. On the shingly, dry beach, are found abundantly *Silene maritima* and *Glaucium luteum* (yellow horned Poppy), a grand, showy plant. In the ruins of Netley Abbey the *Atropa Belladonna* (Deadly Nightshade) grows, but very sparingly, a fortunate circumstance. Its berries, tempting to the eye, are most dangerous; it is one of the most virulent of our poisonous plants. Not far from the abbey, in the hedge which skirts the carriage-road from the Ferry to Netley, the Deptford Pink (*Dianthus Armeria*) grows very sparingly. Several interesting but not rare Ferns, viz. *Asplenium Adiantum-nigrum* and *Nephrodium angulare* (*Aspidium angulare,* Sm.), grow in the same vicinity. The very rare Sea Gromwell (*Steinhammera maritima*) has been seen on the half-dry beach just within reach of the salt spray, with the common yellow horned Poppy and the Sea Catchfly; it is a rare occurrence, and when it does occur only a solitary plant or so is met with. The old wall of Southampton abounds with the strong-smelling plant *Sinapis tenuifolia,* Sm., or *Diplotaxis tenuifolia,* DC. This is, however, a common plant in all maritime or submaritime localities where men do congregate; it is one of those real migratory plants like Cress, Shepherd's-purse, etc., and affects rubbishy, secluded parts that abound in the *rejectamenta* (rejected things) of civilized life.

PLANTÆ RARIORES.—List B.

Plants common in the south of England, but their spontaneous growth ceases or terminates in the north of England or in the middle or north of Scotland. N.B.—They are all more or less common on the continent of Europe, and their frequency or rarity is supposed to be indicated by the numbers following their names. Thus, *Sambucus nigra,* 18, Sh., means that these plants are in Shetland; and *Viburnum Lantana,* 8, F., in Feroe.

Clematis Vitalba, *L.*, 6.
Thalictrum flavum, *L.*, 15.
Ranunculus auricomus, *L.*, 15, F.?
Ranunculus arvensis, *L.*, 13.
Papaver Argemone, *L.*, 17.
Chelidonium majus, *L.*, 14.
Coronopus Ruellii, *Gært.*, 15.
Lepidium campestre, *Br.*, 15.
Cardamine amara, *L.*, 15.
Reseda lutea, *L.*, 12.
Reseda Luteola, *L.*, 16.
Viola odorata, *L.*, 15.
Viola hirta, *L.*, 14.
Lychnis vespertina, *Sib.*, 14, F.?
Lychnis Githago, *Lam.*, 18.
Cerastium aquaticum, *L.*, 10.
Sagina apetala, *L.*, 14.
Malva sylvestris, *L.*, 17.
Malva rotundifolia, *L.*, 14.
Malva moschata, *L.*, 16.[1]
Hypericum perforatum, *L.*, 16.
Hypericum dubium, *Leers*, 15.
Acer campestre, *L.*, 10.
Geranium columbinum, *L.*, 15.
Hippocrepis comosa, *L.*, 10.[2]
Rosa rubiginosa, *L.*, 15.
Sanguisorba officinalis, *L.*, 14.[3]
Poterium Sanguisorba, *L.*, 15.
Pyrus Malus, *L.*, 16.
Epilobium hirsutum, *L.*, 15.
Saxifraga granulata, *L.*, 13.
Sedum Telephium, *L.*, 17.
Helosciadium nodiflorum, *Koch*, 15.
Sium angustifolium, *L.*, 14.[4]
Œnanthe fistulosa, *L.*, 15.[5]
Torilis infesta, *Spr.*, 10.
Torilis nodosa, *Gært.*, 13.
Torilis Anthriscus, *Gært.*, 14.
Anthriscus vulgaris, *Pers.*, 16.
Sambucus nigra, *L.*, 18?
Viburnum Opulus, *L.*, 17.
Viburnum Lantana, *L.*, 8.[6]
Galium cruciatum, *With.*, 16.
Galium Mollugo, *L.*, 13.[7]
Dipsacus sylvestris, *L.*, 15.
Scabiosa Columbaria, *L.*, 13.
Tragopogon pratensis (minor), *L.*, 15.
Apargia hispida, *Willd.*, 15.
Lactuca muralis, *Less.*, 12.
Hieracium umbellatum, *L.*, 17.
Hieracium cæsium, *Fr.*, 18?
Cichorium Intybus, *L.*, 16.
Serratula tinctoria, *L.*, 13.
Carduus nutans, *L.*, 13.
Carduus tenuiflorus, *Curt.*, 15.[8]
Carduus acaulis, *L.*, 7.[9]
Onopordon Acanthium, *L.*, 14.
Carlina vulgaris, *L.*, 16.
Centaurea Scabiosa, *L.*, 15.
Bidens tripartita, *L.*, 16.
Bidens cernua, *L.*, 16.
Erigeron acris, *L.*, 14.
Senecio erucifolius, *L.*, 13.
Inula Conyza, *DC.*, 11.
Pulicaria dysenterica, *Gært.*, 15.
Pyrethrum Parthenium, *Sm.*, 17.
Matricaria Chamomilla, *L.*, 14.
Anthemis nobilis, *L.*, 13.
Anthemis arvensis, *L.*, 14.
Campanula glomerata, *L.*, 12.
Jasione montana, *L.*, 16, Sh.
Gentiana Amarella, *L.*, 17, Sh.
Ligustrum vulgare, *L.*, 10.
Convolvulus sepium, *L.*, 16.

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[1] This plant is not common in the south of England; but on the Clent Hills (trap) it is very abundant, far more so than the two species which are most common in the south.

[2] Occurs abundantly on chalky soils.

[3] On chalk and limestone soils.

[4] *Cicuta virosa* has the same provincial census as this plant; yet the latter is a rare plant, at least in the south of England.

[5] It occurs about Glasgow.

[6] Plentiful in hedges on the chalk.

[7] Is not this plant more abundant in the south than *G. cruciatum?* The latter is very common in the midland counties.

[8] This plant is not rare near the sea and on the banks of tidal rivers.

[9] Plentiful on chalky pastures.

Convolvulus arvensis, *L.*, 14.
Cuscuta Epithymum, *Sm.*, 11.[1]
Solanum Dulcamara, *L.*, 17.[2]
Hyoscyamus niger, *L.*, 17.[3]
Verbascum Thapsus, *L.*, 16.
Verbascum nigrum, *L.*, 7.[4]
Veronica polita, *Fr.*, 15?
Veronica montana, *L.*, 16.
Veronica Anagallis, *L.*, 17.
Scrophularia aquatica, *L.*, 14.
Linaria Cymbalaria, *Mill.*[5]
Linaria Elatine, *Mill.*, 10.
Linaria spuria, *Mill.*, 7.[6]
Verbena officinalis, *L.*, 11.
Salvia verbenaca, *L.*, 13.
Mentha Pulegium, *L.*, 12.
Calamintha Acinos, *Clairv.*, 15.
Calamintha Nepeta, *Clairv.*, 11.[7]
Calamintha officinalis, *Mœnch*, 12.
Calamintha Clinopodium, *Spen.*, 15.
Ballota nigra, *L.*, 13.
Lamium album, *L.*, 14.
Lamium Galeobdolon, *Crantz*, 10.
Galeopsis Ladanum, *L.*, 15, F.
Stachys Betonica, *Benth.*, 15.
Nepeta Cataria, *L.*, 12.
Myosotis palustris, *With.*, 15, Sh. F.
Myosotis repens, *Don*, 16.
Myosotis collina, *Hof.*, 16, F.
Lithospermum officinale, *L.*, 17.
Symphytum officinale, *L.*, 15.
Cynoglossum officinale, *L.*, 14.
Lysimachia vulgaris, *L.*, 16.
Lysimachia Nummularia, *L.*, 13.
Anagallis arvensis, *L.*, 16.
Anagallis tenella, *L.*, 17, Sh. F.
Samolus Valerandi, *L.*, 16.
Chenopodium rubrum, *L.*, 14.
Chenopodium murale, *L.*, 11.
Beta maritima, *L.*, 14.
Polygonum minus, *Hud.*, 12.
Rumex Hydrolapathum, *H.*, 12.
Daphne Laureola, *L.*, 12.
Euphorbia exigua, *L.*, 14.
Euphorbia amygdaloides, *L.*, 10.
Mercurialis annua, *L.*, 11.
Humulus Lupulus, *L.*, 12.
Populus alba, *L.*, 11.[8]
Spiranthes autumnalis, *Rich.*, 11.
Epipactis latifolia, *Sw.*, 16.
Listera ovata, *Br.*, 17.
Orchis Morio, *L.*, 11.
Orchis pyramidalis, *L.*, 13.
Convallaria majalis, *L.*, 13.
Allium vineale, *L.*, 14.
Ruscus aculeatus, *L.*, 8.
Tamus communis, *L.*, 12.
Hydrocharis Morsus-ranæ, *L.*, 11.
Alisma ranunculoides, *L.*, 17.
Sagittaria sagittifolia, *L.*, 13.
Butomus umbellatus, *L.*, 11.
Potamogeton pectinatus, *L.*, 15, Sh.
Potamogeton pusillus, *L.*, 16.
Potamogeton crispus, *L.*, 15, Sh. I.
Potamogeton perfoliatus, *L.*, 17, I.
Potamogeton lucens, *L.*, 14, Sh. F.
Potamogeton densus, *L.*, 12.
Zannichellia palustris, *L.*, 16.
Lemna polyrrhiza, *L.*, 12.
Lemna gibba, *L.*, 10.
Arum maculatum, *L.*, 14.
Acorus Calamus, *L.*, 9.

[1] Abundant on every heath in the south of England.

[2] See List A.

[3] The *Solanum* is a common plant in the south of England; the *Hyoscyamus* is rare; yet in some parts of Huntingdonshire and Northamptonshire the latter is as common as *Thistles.*

[4] *V. Thapsus* has probably a wider area, but *V. nigrum* comprehends more individual plants.

[5] This plant, though probably a naturalized alien, has a wide area, and abounds where it has gained a footing.

[6] *L. spuria* is mostly confined to the chalk in the south of England. *L. Elatine* is plentiful on clay, sand, and gravel soils.

[7] We beg to call the attention of our readers specially to this plant.

[8] We wish to know if this tree is self-propagated in any part of the British Isles? We omit the *Salices.*

Sparganium simplex, *Huds.*, 17.
Typha latifolia, *L.*, 14.
Typha angustifolia, *L.*, 12.
Rhynchospora alba, *Vahl*, 17.
Scirpus sylvaticus, *L.*, 16.
Carex sylvatica, *Huds.*, 15.
Carex hirta, *L.*, 15.
Carex curta, *Good.*, 16.
Carex muricata, *L.*, 15.
Carex acuta, *L.*, 15.
Carex intermedia, *Good.*, 14.
Carex pendula, *Huds.*, 15.
Carex Pseudo-cyperus, *L.*, 11.
Carex riparia, *Curt.*, 14.
Alopecurus agrestis, *L.*, 11.
Arundo Epigejos, *L.*, 16.
Avena flavescens, *L.*, 13.
Melica uniflora, *Retz*, 15, Sh.
Glyceria aquatica, *Sm.*, 14.
Glyceria rigida, *Sm.*, 14.
Poa nemoralis, *L.*, 16, I.
Festuca elatior, 15.
Bromus sterilis, *L.*, 15.
Poa compressa, *L.*, 15.
Hordeum murinum, *L.*, 13.
Hordeum pratense, *Huds.*, 12.
Equisetum Telmateia, *Ehrh.*, 16.

BOTANICAL SKETCHES.

Account of a Day's Botanizing on Boxley Hills, Kent, the 31*st May*, 1858.

Several botanists of some considerable experience prefer Kent as affording the best botanizing ground in England. Comparisons, as we learn from the common adage, are odious,—not "odorous," or pleasant, as Mrs. Malaprop would say,—yet there is some reason for this preference. No English county affords more Orchids,—nor better cherries, an epicure would say. There is no county, probably not excepting Yorkshire itself, which boasts a richer Flora, or, in other words, produces a greater number of species. To the writer of this sketch it is interesting, because he does not know it quite so well as he knows some districts. *Omne ignotum pro magnifico* is an axiom in the botanical as it is in the political world.

A party started from the north or Middlesex side of the Thames on an early morning, the last of May, to visit this garden, or, rather, orchard of England. It is both, and it yields some grist to the miller besides. It is not exclusively cultivated with currant, raspberry, and strawberry plants, but it bears abundantly the staff of life.

As our party was rather large, viz. four, two veterans and two neophytes, the plural *we* may be assumed. A genuine botanist would never go out alone if he could get a mate.

We enjoyed "the breezy call of incense-breathing morn" among the hawthorns of St. James's Park, then in the fulness of fragrance and beauty. These smells and sights were presently exchanged for those of Bridge Street, Lambeth, New Cut, Union Street and High Street, Borough. The locomotive, however, soon conveyed us into more pleasant localities. On a level with the uppermost chimney-pots, and above some, the machine soon conveyed its living load through the Borough, New Cross, Lewisham, Blackheath, and underground to Charlton, Woolwich, and Plumstead; hence through meadows and deep cuttings to Erith, Greenhithe, Northfleet, and Gravesend; from Gravesend across Milton meadows and along the margin of the subterranean canal to Strood and Rochester; hence to Cuxton, so pleasantly and snugly nestled under the lordly domain of Cobham Park, famed for botanical rarities; up the shore of the muddy Medway to Snodland, where we disembarked, and where our botanizing was to begin.

The North Kent line of railway is one of the cheapest lines which have their *termini* in London, and it is of the utmost convenience to botanists. In the earlier part of the day there are trains every hour, cheap trains too, an object of some consideration to the amiable fraternity bearing the vasculum and digging-tool. It passes through localities rich in plants or in botanical associations. Honour Hill, through which there is a deep cutting for the rail, has been distinguished by the special notice of Curtis, the honoured father of British illustrative botany. Blackheath has been, and still is, the locality of several rare plants. Eltham is celebrated for its rare species, and above all for the eminent Dillenius and the two Sherards, his munificent patrons. Plumstead marshes yield in plenty two of the rarest of British Grasses; also the Summer Snowflake, discovered by some of the energetic members of the Greenwich Botanical Club. Greenhithe, Northfleet, Gravesend, etc., have been places of celebrity among the simplers since the times of Gerard, Johnson, and the early fathers of British local botany.

What botanist has not heard of Johnson's journey into Kent in 1629, on the 13th July, when the adventurous party (they went by water, as many still-living botanists have done since, along the silent highway now in bad repute for naughty smells) were overtaken by a tempest which so terrified four of the companions that they put in at Greenwich to refresh themselves and to recover from their fright. Johnson and the other heroic botanists made their way to Gravesend, where they breakfasted or supped, and thence to Rochester, where their botanizing really began. The account of these ancient excursions has been reprinted, and is sold at 45, Frith Street, London.

Our botanizing began at Snodland, where we crossed the Medway by a ferry and walked along the dyke or bank to another village, Burham, nearly opposite Snodland.

On this bank we saw plenty of *Thalictrum flavum,* Meadow Rue, and the narrow-leaved Water Dropwort, *Œnanthe Lachenalii;* also *Ranunculus hirsutus,* not a common plant, but plentiful in many parts of the Thames valley below London. There was a fine colony of Reeds (*Arundo Phragmites*) on our right-hand, and in the midst of these, unseen, not unheard, the reed-warbler warbled forth his melodious notes. We soon left the shores of the Medway, and stretched out to the ridge of chalk hills, which extend between Rochester and Maidstone. Our grand object was the Spider Orchis, *Ophrys aranifera,* which we had heard grows there, but which, we are sorry to say, we did not see.

But there are many objects worth seeing on Boxley Downs. I am not certain that this is the correct appellation of this ridge; I call it so because the pretty village of Boxley lies almost in the bosom of the chain of hills or in one of its lateral combs. We mounted the ridge rather too early for Orchids, none of which appeared till we nearly reached that part which overhangs Boxley Abbey. We saw among the Juniper-bushes *Aceras anthropophora,* the Green Man-Orchis, after leaving the village afore-mentioned, and while ascending to the ridge of the hill.

On a brow of the hill we lighted on a fine colony of Columbines, "stone-blue or deep night-brown." Ours were blue, deep sky-blue, or white; the brown we did not see. There is a question about the nativity of this plant, a question which I will not answer. I can safely affirm that it is of spontaneous growth on these chalk downs of Kent. It is to be found for miles, not always or everywhere equally plentiful; usually in the woods, but sometimes, as in the above-mentioned locality, on the bare, bleak brow of the hill. It is common on similar places in Surrey, as on the downs between Dorking and Guildford. It abounds in Rockingham Forest, not far from Oundle, and there it is oftener "night-brown" than blue, as the shepherd-poet of Northamptonshire describes it. This part of the country is on the oolite. The same plant grows well enough in woods on the iron-sand near Godalming.

We were here rather too early in the season for Orchids, but not for the Spider Orchis, which is one of the earliest. I have seen it from Kent, probably near Folkestone, in May or the latter part of April. The *Orchis mascula* was still in full flower; that of the *O. maculata* was not yet developed. *Gymnadenia conopsea* was in the same state. *Listera ovata,* Twayblade, was here and there in flower; so was *Habenaria chlorantha,* the Butterfly Orchis. *Cephalanthera grandiflora,* White Helleborine, was only coming into flower. On reaching the downs adjoining Boxley village, the most productive part of this locality, as we had observed on a former visit, viz. in September, 1857, we saw *Helleborus fœtidus* (Hellebore) growing freely in the old chalk-pits.

This is another of our suspected plants.

That it is of spontaneous growth here and in many other parts of England there is no doubt. Grave doubts are entertained about its nativity. It is not nearly so common as the Columbine is, nor is it quite so common as the Green Hellebore, *H. viridis.* I am not sure whether or not there be so many distinct localities for its spontaneous growth as there are for the Green Hellebore. But where the Green Hellebore grows at all, I have always seen it in great force. I never saw so many individuals of the Stinking Hellebore, nor extending over so wide an extent, as on this part of the downs adjoining Boxley.

In several parts about this spot we collected many specimens of the Fly Orchis, *Ophrys muscifera,* with the lower flowers of the spike only well expanded. The leaves of the Bee Orchis had not at that time appeared.

We saw the usual chalk plants, such as *Inula Conyza,* Plowman's Spikenard, *Hippocrepis comosa,* etc. etc.

Several fine specimens of *Orchis fusca* were observed, the finest, in our judgment, of all the British Orchids. One of our youngsters had the pleasure of discovering a fine example of this grand plant.

Orchis ustulata was wistfully looked for. From appearances one is certain that the plant grows there, but we did not observe it. *Herminium Monorchis* we only thought might be there, and it probably is so.

The temperature was, it may be said, excessively hot for so early a period of the season; and as we had to walk to Aylesford station, four or five miles, to meet the up-train from Maidstone to London by four o'clock, we thought it prudent to direct our steps homewards. In returning, we took Boxley Abbey in our way. When we visited this celebrated place in the hopping season last year, 1857, there were seen on the abbey wall, whether on the outer or on the inner is not remembered, one of our mural Pinks at least, perhaps both, viz. *Dianthus plumarius* and *D. Caryophyllus.* On passing along the base of it on the last day of May, 1858, we saw neither.

But we saw neat specimens of *Linaria Cymbalaria* covering the coping, and forming a mural crown neater far than the Wall Pinks. With this and *Sedum reflexum,* the seven-angled variety, we consoled ourselves for the lack of the former.

The place, and our tired condition, induced us to moralize on the transitory state of all worldly possessions, and to cogitate on the condition of things here, at Boxley Abbey, only four centuries ago, not a very long space in the world's history or in the history of mankind. The latter is but like an age of the present short-lived human race when compared with the great geologic periods which reckon their epochs by myriads, not by centuries. Only four hundred years ago—and it would be as near the mark to say that only about three hundred years ago—this pleasant and fertile domain was inhabited by a numerous body of religious and secular persons, whose lives were, ostensibly at least, spent in the service of God and in ministering to the necessities of their fellow-creatures, or in preparing them for another state. It is a ruin. The land which supplied food for men is now pastured by bullocks or sheep. The orchards have disappeared; so have all the monastic buildings. The residence of the owner of this once populous place is a plain, unpretending edifice, noticeable because it is the only habitable erection here.

We are not *laudatores temporis acti,* and therefore do not wish for past times to return, when the mailed knight trod the hall and the cowled monk the cloister and chancel. We know that these are numbered with the past, and we believe that they will never again be present. They did their work in their day, and we had a good portion of our day's work to do, and had therefore no longer time for moralizing and sentimentalism. From Boxley Abbey to the station the distance is three good English miles, and we had barely an hour for accomplishing it.

From Aylesford village we scoured along the left bank of the Medway, and had just time to look at the place where we saw the rare *Sonchus palustris* last year. We did not see it this, but hope it will again make its appearance near this at some future time if not now.

We reached the station and took a ride to Cuxton, and refreshed ourselves after having been out above twelve hours, a good working day. What we saw and did at Cuxton may be the subject of a future contribution. W. P. & A. I.

BOTANICAL SKETCHES FROM WILTS.

By the Rev. M. M. Atwood.

On the 6th I joined a small party in a short excursion to the Weevern Valley, a locality in Wilts, so named from the brook which winds through the district, and is surrounded on both sides by undulating woods. The site which we visited was a few miles from Corsham, and appeared very productive in objects of botanical interest, if we may judge from the very limited space we examined; and perhaps the enumeration of some of the rarer plants may not be uninteresting. *Orobanche minor* was very luxuriant in the clover-fields, rivalled by that of *Ornithogalum pyrenaicum* amongst the corn. This stately and beautiful plant appears peculiar to Wiltshire, and springs up in a variety of habitats, such as woods, cornfields, and banks. Of the rarer Orchids, we found *Ophrys apifera, Habenaria viridis,* and *Orchis pyramidalis ;* the latter seemed very plentiful. Fine plants of *Poterium Sanguisorba* grew on the banks as we descended into the valley; but the season was too early for any show of fruit. *Geranium pratense* also appeared extremely luxuriant. In the vicinity of the brook we gathered *Carex hirta* and *C. paludosa* in great perfection. *Typha latifolia* was abundant in a detached spot, its stiff-looking spikes forming a striking contrast to the graceful *Scirpus sylvatica.* But the most interesting local discovery was made by Miss Buck, of Biddestone St. Peter's, viz. that of a very fine plant of *Polemonium cœruleum !* It grew on a somewhat bushy site of the bank, above the stream. We endeavoured to trace its origin, but could not arrive at any satisfactory conclusion. The nearest habitation was a farm-house, situated about a quarter of a mile distant. It is mentioned in vol. iii. of the 'Cybele Britannica,' that the late Mr. Withers found the *Polemonium* in a coppice at Bathford, so that probably this is its second notice of discovery in the county. *Carduus eriophorus* grew very luxuriantly on the dry banks, and *Verbena officinalis* by the wayside.

EXTRACTS FROM CORRESPONDENCE.

June 22nd.

. . . I found *Elymus* abundant about Sherborn Sands, which, it may be new to you to hear, are now shut up; but the key can be had for asking for, without the bore of an attendant. I have investigated the corner of Blackheath, and soon sighted *Geranium pratense.* Being thus satisfied that I was in the right place, I sought and found, among a profusion of *Trifolium striatum* and *minus,* three *Medicagines,* being *lupulina, maculata,* and another, prostrate, with spinous fruit and unstained leaves. This last could not be *minima,* as it was far from having entire stipules; but on comparing it with undoubted specimens of *maculata,* though I could find no difference in the fruit, I flattered myself that there was somewhat more of *denticulation* on the stipules, and that it might be *denticulata.* But alas! next day I found others exactly like, except that they had *no* more denticulation, and here and there a *trace* of stain on the leaves. On the whole, I fear this is not the *denticulata* of foreign botanists, or else, as you surmise, theirs does not differ from *maculata.* I do not think there are any other *Medicagines* in the locality this year.

I see in "British Plants" you date the discovery of *L. Martagon* in Headley Copse from 1840. If so, I can claim earlier discovery, as I have known it there from 1826. For a year or two it puzzled me grievously, as I dared not think it could be *Martagon;* but about 1829 I found it in flower, and, I believe, wrote to Sir W. Hooker about it; but he, as you know, repudiated it as a British plant. I should like to know if I was also the first to notice *Impatiens fulva.* I found it below the bridge at Albury, in 1822, but mistook it for *Noli-me-tangere. A-propos,* I searched last Monday the skirts of Weston Wood for

Arundo Epigejos, but fruitlessly. I see you consider *Adiantum* a maritime plant; I suppose therefore it is so in the British Islands; but I have never known it as such, its habitats in the Alps, Italy, etc., being those of *Scolopendrium,*—damp walls, vaults, very shady and moist ruins, the spray of waterfalls, etc., and in no way affecting maritime localities. J. S. M.

Perth, 22nd July, 1858.

. . . I have been at Scone Wood myself for the *Aremonia agrimonioides,* and brought a living supply of plants with me for you. In regard to it, it is not plentiful: it is sparingly distributed over a lineal extent of about two hundred yards (as far as I observed) along the border of a walk, but under the trees, and difficult of detection, growing along with the *Fragaria vesca,* as the three terminal leaflets have a great resemblance at first sight to the leaves of the Strawberry, there so abundant. I however send you a living specimen, root and branch. The *Potentilla* is also in small quantity,—not above, I should say, six or eight plants of it altogether; and the mowers, with their scythes, have done me a great injury: one fine plant in particular, sending up a great many robust stems, not in flower when I observed it first; and I was to return afterwards, when it would be in blossom, and get a supply. But how great my mortification when it was cut down, and, with the grass, carried away! I however enclose a small plant for you. It was more abundant two years ago. I have lately discovered three plants in this parish (Kinnoul) which I never before saw growing in Scotland, viz. *Linaria repens, Allium oleraceum,* and *Lysimachia Nummularia.* JOHN SIM.

[*Note.*—The plants arrived here in life, but the *Potentilla* is now quite dead, and the *Aremonia* is not likely to survive its companion.]

Ty Cerrig, Llandderfel.

. . . The Moonwort is very fine and abundant in several places around us, about one mile from this house; I send you one of the largest specimens. *Hypericum Elodes, Comarum palustre,* etc., in the adjoining meadows. We have about here several of the less common *Geraniums,* viz. *lucidum, columbinum,* etc. The stone wall and bank that forms the boundary of this house is prettily ornamented with *Cotyledon umbilicus, Fumaria claviculata, Campanula rotundifolia,* and the common Ferns. W. P.

July 23*rd*, 1858.

. . . I have been out for a few days, with some botanical results. You have probably found, like myself, that when one goes to a neighbourhood known for rare plants one seldom finds those one seeks for: one finds others which one did not expect. It has not so happened with me this time, for during a day at Matlock I found one of the two special rarities of that place, *Thlaspi virens,* Bab. (*alpestre,* Sm.), still not entirely out of flower; and I have plenty for you as well as myself, if you would like to have any. The other plants worth mentioning which I found at Matlock were *Arenaria verna,* still spangling the hillsides with its blossoms; *Cardamine impatiens,* plentiful; *Convallaria majalis, Arabis hirsuta, Campanula latifolia,* and *Geranium pratense,* all in abundance: its usual northern substitute, *G. sylvaticum,* I did not see.

Other plants in Derbyshire:—*Silene nutans,* Dovedale and Wyedale; *Vaccinium Vitis-idæa,* Chatsworth; *Rosa villosa* and *R. tomentosa,* Monsal Dale and its vicinity; *Myrrhus odorata,* Millersdale; also, I believe, between Castleton and Hathersage; *Cochlearia officinalis* and *Thalictrum flexuosum* (or rather, perhaps, *T. calcareum*), abundant on rocks above Castleton; *Viola lutea* (which I prefer calling, with De Candolle, *V. sudetica,* as it has a blue variety), on all mountains and hills near Castleton; the blue variety occasionally; *Polypodium calcareum,* in clefts of rocks between Bakewell and Buxton; *Cystopteris fragilis,* in similar situations there, and near Castleton; *Carduus heterophyllus,* plentiful in wet ground by the river Wye, near Cowdale turnpike, two miles from Buxton, on the Bakewell Road; *Polemonium cœruleum,* on rocks by the same road, one mile from Buxton, but so difficult to be got at that I only secured one specimen. . . .—July 30th, 1858. I will send *Silene* along with *Thalictrum.* My specimens are not from Dovedale, though I saw the plant there, but from Wyedale, about a mile above Ashford, near Bakewell. The leaf of the *Viola* from New Brighton is very much like that of some specimens I brought from Italy under the name of *V. montana* or *Ruppii,* both of which are considered forms of *canina.* . . .—Among the Derbyshire plants which I saw I omitted *Allium vineale,* near Matlock (at the very top of the High Tor), and *Saxifraga hypnoides,* in various places, but always much past flower, even in places where *Cardamine pratensis* was still flowering. J. S. M.

Great Glenham, 29th July, 1858.

. . . I send you a few notes on East Suffolk plants, which may be of interest to some of your readers. Two of the rare species I have met with are, I fear, already extinct.

Hippophae rhamnoides. Thorpe, near Aldborough. I have not seen this growing, but have had fresh specimens brought to me, and am informed that it grows on the sand-cliffs by the sea.

Orchis hircina. Of this species I have only seen the specimen recorded in the 'Phytologist' (for 1847?), which I met with at Great Glenham, in July, 1847; it is now in the possession of Mr. C. C. Babington. Although I have examined the locality almost every year since that time, I have been unable to find a second specimen.

Aceras anthropophora. This has occurred in a similar manner to the preceding species. A single specimen gathered at Stenfield, near Saxmundham, was shown me some years ago, but it has not again occurred there, and I am not aware that it has been met with anywhere else in this neighbourhood. It is, I believe, not uncommon in the western part of the county.

Eryngium campestre. In 1855 I met with a small patch of this plant at the foot of the cliff, a quarter of a mile south of Dunwich old church. I saw it again in 1856, not however in a flowering state; but on searching for it last year I found that the sea had considerably encroached, and destroyed the station. I sent a specimen to Professor Henslow, which I believe is placed in the Ipswich Museum.

Scirpus Savii, Snape. This grows in considerable abundance near the river, both in boggy ground and on the sand. Unfortunately I was not aware of its rarity on this coast, and therefore preserved very few specimens. This occurs also, I believe, at Benhall Green.

Elymus arenarius. I have met with a few flowering tufts of this plant on our coast, but it seems to be rare. Norfolk is mentioned in the 'Cybele' as the southern limit of this on the eastern coast, and I believe that *Scirpus Savii* is there considered to occur only on the southern and western coast, but I have not the work at hand for reference. E. N. Bloomfield.

THINGS *NOT* GENERALLY KNOWN.

I think Mr. Hind has properly called your attention to the notice inserted in the last June number of the 'Phytologist' under this title, and as he asks *on what authority and by what proofs sustained, the assertions in Specimens of Things not Generally Known have been made,* I beg to refer him and your readers to the 'Vestiges of the Natural History of Creation,' pages 133 and 134 (reprint of sixth edition), from which the passage signed, "*from a Correspondent*" is taken, and the writer of the 'Vestiges' refers for his authority to Darwin's 'Journal of a Voyage Round the World,' Lamarck's 'Philosophie de Zoologie,' and 'The Gardeners' Chronicle, 1846,' page 118, it may be as well for some of your readers to refer to these 'Vestiges,' and set the question at rest. This work also contains other startling assertions, such as (in continuation of the paragraph quoted),—"It appears that poorness of soil has the same effect as mowing down. One observer states that, in a field of wheat near Lucerne, he saw ears resembling barley, but with grain similar to rye, growing from the same stem with ears of wheat. Dr. Lindley, who publishes these facts, acknowledges there being no theoretical improbability in such transformation, seeing that *in orchidaceous plants forms just as different as barley, rye, and oats, have been proved by the most rigorous evidence to be accidental variations of one common form, brought about no one knows how, but before our eyes, and rendered permanent by equally mysterious agency.* It is more than probable that the greater number of what may be called the domesticated plants are unsuspected variations of others which, growing wild, are recognized as different species. One noted instance of such transition has been detected within the last few years in our different kinds of cabbage,—savoy, broccoli, and cauliflower. They are all common descendants of a plant growing wild on our sea-shores, the *Brassica oleracea,* a transition which no one can appreciate till he has compared the tough, slender stem, and small, glaucous leaf of the original, with the stout, fleshy stem, and large, succulent leaves, sometimes gathered into a heart of several feet in circumference, which he will find in the most familiar of the cabbages." The author of the 'Vestiges' then asks: "Apart from all theorizing about the absolute character of species, do not these facts show a transibility and inter-communion of forms totally at variance with those general opinions as to fixity which now reign in the scientific world?"

It may be said, after all, that these things are *not* generally known, and justly so, because they are not true. S. B.

THIRSK NATURAL HISTORY SOCIETY.

Botanical Exchange Club.

The monthly meeting of the Thirsk Natural History Society was held on the evening of Tuesday, the 10th of August. Dr. George Lawson, Professor of Chemistry and Natural History at Queen's College, Kingston, Canada West, was duly elected a Corresponding Member.

Mr. J. G. Baker communicated a paper entitled "Notes on the Spring Botany of Wharfdale."

"During the present spring I had the opportunity of staying a week in Wharfdale, three days of which were in greater part spent in excursionizing. Of what was noticed during the course of these rambles it is my intention to give you some account this evening; but it will be needful to make a few preliminary explanations relative to the physical geography and geology of the dale, in order to render myself intelligible.

"The stream rises on the slope of Cam Fell, nine miles from the western boundary of our county. For forty miles it flows towards the south-east, during that part of its course declining in level from 1200 to 220 feet; for thirty miles more it runs due east, entering the Ouse at Tadcaster; for a little while at first its course is amongst moorlands of the Yaredale division of the mountain limestone series of strata, but soon it plunges amongst the thick beds of the lower limestone, the same that forms the floor of Ingleborough and the scars of Craven, and amongst these it runs for nearly twenty miles. Several of the summits that surround the earlier part of its course, Pennyghent, Fountain's Fell, and Great Whernside, for instance, exceed 2000 feet in elevation. As we proceed towards the south the gritstone takes up more and more of the hilltops, till at last the stream enters it at Bolton Bridge, and nothing else is seen after this till the magnesian limestone at Wetherby is reached; so that we have two distinct portions of Wharfdale: the upper or limestone part, with narrow green meadows, and a clear free stream overhung by mural precipices with innumerable undulations and sinuosities; the lower or gritstone part broader and more sylvan, approached on each side down a gradual slope of heathery moorland. The Leeds Northern Railway passes through the southern flank of the dale by a long tunnel at Bramhope.

"On the 4th of May I left the line at Arthington station to walk ten miles up the dale to Ilkley. By the streamside near the Pool paper-mills is *Lamium Galeobdolon.* By the Wharfeside, above Otley, about the place where a little beck from the south joins the main stream, is a good deal of *Salix undulata* in a plainly indigenous condition, of which more hereafter. The other Willows which I noticed in the dale are, *fragilis, alba, purpurea, rubra, viminalis, Smithiana, cinerea, Caprea,* and *fusca. Cochlearia officinalis* grows here by the riverside, and to my knowledge all along from Bolton Woods downwards to Thorp Arch. The 'Cybele' restricts the name *officinalis* "entirely to the shore plants and to those merely naturalized inland through cultivation," and speaks of *C. alpina* as belonging to the Highland type of distribution; but with us in Yorkshire, besides growing on the coast and on the hilltops, the Scurvy-Grass (plainly one species only) is one of the frequent indigenous plants of the western dales, and is also sometimes carried down by the streams into the central valley, like *Myrrhis odorata* or *Rumex aquaticus.* The *Myrrhis* is here also; and at this part of the Wharfe, which is 220 feet above the sea level, I first noticed *Stellaria nemorum,* which is continued as far up the stream as Bolton Woods. Over Otley the southern flank of the dale becomes grit-crested and heather-clad, and attains an elevation of 920 feet, so that there is a slope of 700 feet from the hilltop to the streamside. Soon after this, on the same side, Rumball's Moor stands out into the dale and narrows it considerably. The hydropathic establishment called Ben Rhydding stands on the slope of this moor, at an elevation of perhaps 700 feet. In the valley down below it, is one of Dr. Carrington's stations for the smaller *Orthotricheæ.* The hedges that margin the roads hereabouts yield *O. pallens, tenellum,* and *stramineum;* they grow mostly in small tufts, upon old branches of Hazel and Hawthorn. By the streamside

I noticed *Mnium serratum, Hypnum murale, H. rivulare,* and *Veronica montana,* and, upon stones in its bed, *Cinclidotus fontinaloides,* and *Hypnum fluviatile.*

"After effecting an establishment at Ilkley, I went up in the evening to explore Rumbald's Moor. Above Ilkley the bank is so thoroughly characteristic of the gritstone, that I will endeavour to describe it for you. The extreme summit of the ridge is 1300 feet high, but that is over away towards Airedale, and the hilltop here is not more than 700 feet above the bottom of the valley (1000 feet in all), and sinks into it by a gradual descent. The crest is marked by an irregular line of scar-like edges of gritstone, huge boulders and *débris* of which are piled about in picturesque confusion immediately beneath the edge, and scattered more sparingly far down below towards the bottom of the valley. The stone is of moderate coarseness of grain and average firmness of consistency. As in all the gritstones, the blocks look corrugated and unshapely, pitted and channelled by the agencies of time and weather, and are stained with brown and golden-hued *Lecideæ,* and variegated with grey patches of *Parmeliæ* and fringe-like tufts of *Evernia jubata* and *furfuracea.* Towards the ground, and on their shaded sides, are to be met with such Mosses and *Hepaticæ* as *Hypnum cupressiforme* and *denticulatum, Jungermannia albicans, Dicranum heteromallum* and *fuscescens.* The hillside is coated mainly with a brown covering of Ling and Bilberry, Heath and Crowberry, thick, swelling in the hollows, stunted and rough on the undulated knolls, margined with grassy turf where the ground is drier and the rocks more thinly clad with earth. The damper plashes are marked by a dense growth of *Aulacomnion palustre, Leucobryum glaucum,* and various *Sphagna;* and numerous tiny watercourses, edged with *Stellaria uliginosa* and *Montia fontana,* trickle through thick masses of dark-green *Hypna, Brya,* and *Bartramiæ,* and these converge gradually towards a little gill, at the bottom of which a streamlet makes its way down the descent, now forcing a road between a narrow channel of rocks, the luxuriant covering of which almost hides it from the face of day, now leaping with foam and bubbles over a Moss-fringed stone that would interpose to bar its progress, and ever and anon spreading out into a more open channel, and rippling noisily over the scattered pebbles. In the way of rarities the stream yields abundance of *Hypnum flagellare* and *exanulatum;* the damp places on the hillside, *Mnium subglobosum* and *Hypnum stramineum;* and the walls, *Weissia cirrhata* and *Ptychomitrium polyphyllum.* In a limestone hill of equal elevation, the top would have been more of a table-land, the streamlet fed from springs at the hillside instead of these trickling water-courses, the edge of the bank a precipitous scar, the slope much drier and more abrupt; and I need scarcely say the Flora changed in character in a degree proportionate to the difference in physical conformation.

"Next day my brother and our valued muscological curator joined me at Ilkley for an excursion to Bolton Woods, and Dr. Carrington kindly came over from Yeadon to point out to us the stations of the rarities. We took a gig as far as Bolton Bridge, five miles up the river from Ilkley. Near Addingham is another station for the three little *Orthotricheæ.* About this point, as before explained, we leave the millstone grit and enter upon the Yoredale series of strata; but in this part the lithological transition is barely appreciable. Upon a wall near Fairfield Hall is one of the few stations in Britain where *Encalpyta streptocarpa* has been seen in fruit, but we could meet with only some half-a-dozen capsules. About Bolton the valley is quite as broad and as fully cultivated, the fells scarcely higher or steeper, and the aspect of the country not more mountainous than at Ilkley.* Upon the trees that margin the Wharfe is plenty of *Leskea polycarpa,* and here again, on the rocks in the bed of the river, abundance of *Hypnum fluviatile,* and *Cinclidotus.* The priory, theme alike of poet and painter, celebrated by Wordsworth, by Rogers, by Turner, by Landseer, and by Ruskin, stands not far from the streamside, just high enough to save it from the risk of inundation. A portion of it, as readers of Wordsworth know, is still kept in repair, and used as a chapel. Upon the ruined walls grow *Linaria Cymbalaria* and *Cheiranthus Cheiri,* and in the meadow near the river here, 350 feet above the sea-level, is *Viola lutea.* On the opposite side of the river to the abbey is the steep bank of contorted, dark-coloured shale, crested with Oak- and Ash-trees, that forms the principal object in Turner's picture. Upon the rocks on the west side of the river above the abbey, we gathered *Hypnum crassinervium* in fruit. For about a mile higher up, the Duke of Devonshire's park extends, and then Bolton Woods are reached. The fells now begin to rise with tolerable abruptness from the streamside; first Carncliffe, and then Symon's Seat, on the east, attaining respectively 1471 and 1585 feet; and on the west, Barden Fell, 1663 feet. The bottom of the fells, down to the riverside, is thickly wooded, and the stream for a considerable distance becomes contracted by cliffs of hard gritstone, between which it forces its way in a series of picturesque rapids. These form what is called the Strid, the place where the stag-hunt of the Boy of Egremont met with so fatal a termination. The channel at the narrowest part is only four and a half feet wide; and here, except when the stream is flooded, a moderately agile person may leap across without much risk of danger. The main botanical *notabilia* of the place are *Orthodontium gracile* and *Plagiochila interrupta.* The former we gathered in moderate plenty, in fruit, upon the gritstone scars near the summer-house, and the latter in the bed of the river in some of the quieter places. *Sesleria cœrulea* is plentiful upon the rocks by the streamside, and descends here to at least 400 feet: it is quite possible that it may have originally been carried by the Wharfe to this point from the limestone higher up, but it is now well established. The plant grows amongst the *débris* below Giggleswick Scars at 200 yards. I have also seen it both in Teesdale and Yoredale, within the limits of the mid-agrarian zone, and am informed by our friend Mr. H. Brown, that in the county of Durham it occurs amongst the hills of magnesian limestone that margin the coast between Shields and Sunderland within 100 yards of the sea-level. Of flowering plants of the Scottish type of distribution, *Arenaria verna, Geranium sylvaticum, Ribes*

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* "Except in the stony bed of the stream, the scene possesses little more aspect of mountainous character than belongs to some of the park and meadow land under the chalk hills near Henley and Maidenhead; and if it were faithfully drawn in all its parts, and on its true scale, would hardly more affect the imagination of the spectator, unless he traced with such care as is never from any spectator to be hoped, the evidence of nobler character on the pebbled shore or inconspicuous rock. But the scene in reality does affect the imagination strongly, and in a way wholly different from lowland hill scenery. A little further up the valley the limestone summits rise, and that steeply, to a height of 1200 feet above the river which foams between them in the narrow and dangerous channel of the Strid. Noble moorlands extend above, purple with heath, and broken into scars and glens, and around every soft tuft of wood and gentle extent of meadow throughout the dale, there floats a feeling of the mountain power, and an instinctive appreciation of the strength and greatness of the wild northern land."—*Ruskin,* '*Modern Painters,*' vol. iv. p. 256.

petræum, Galium boreale, and *Trollius* also occur. *Polygonum Bistorta* grows by the streamside, and *Lathræa Squamaria* in some of the more shaded places of the wood. In the way of dysgeogenous species we saw *Viola hirta,* and upon blocks of limestone carried down by the river, *Neckera crispa, Trichostomum flexicaule,* and *Tortula tortuosa.* Of the Mosses of higher altitudes there are *Distichium capillaceum, Zygodon Mougeotii, Bartramia Œderi,* and *Hypnum pulchellum.* Upon the trees we gathered *Antitrichia curtipendula, Orthotrichum Bruchii, Zygodon viridissimus,* and *Neckera pumila,* both the two latter in fruit; and in damp, shaded spots by the river, *Mnium rostratum, undulatum,* and *serratum,* all three fruiting in beautiful condition. In various parts of these woods *Hypnum elegans, piliferum,* and *brevirostre, Tetraphis pellucida, Mnium stellare,* and *Dicranum fuscescens* were also collected. We returned in the evening to Ilkley, and upon a mud-capped wall near the Wharfe, below Addingham, noticed *Tortula rigida* and *revoluta.*

"The day but one after this, my companions having left, I paid a visit to the fells on the north side of the river. Near the bridge above Ilkley (300 feet), *Viola odorata* grows by the streamside, and *Ægopodium Podagraria* at an elevation of at least 250 yards, in a Fir-wood near Middleton Hall. In a gill near Langbar I noticed abundance of *Hypnum stramineum* and *cordifolium.* After crossing the road between Skipton and Harrogate, I ascended to Beamsley Rocks, the crest of heathery hill, 1314 feet in elevation, that lies on the line of watershed between the Wharfe and its tributary the Washburn. Near the summit of these rocks I noticed *Andreæa Rothii, Hypnum elegans,* and *Dicranum fuscescens;* and in boggy ground upon the hill-slope, *Sphagnum compactum* and *Hypnum scorpioides.* At the head of the gill down which runs the stream to Beamsley, I saw *Sphagnum contortum;* and a little lower than this, at an elevation of 300 yards, more or less, *Juncus diffusus* and *Myrrhis odorata.* Though it is expurgated from the list of British aborigines by M. Alphonse de Candolle, I have full faith in *Myrrhis* as a genuine inhabitant of Yorkshire. In cases of this kind direct observation of a plant in the places where it grows is a much safer guide to a correct conclusion than *à priori* induction and the collation of authorities. By the streamsides and in damp meadows this is one of the commonest dale plants of our county, an oft-recurring experience of its peculiar aromatic odour furnishing an inseparable accompaniment to an excursion in hot weather amongst the hill country; and yet, although I have heard sometimes from the farmers and labourers of its being used medicinally, I do not remember to have seen it once under cultivation. Amongst the western hills it grows plentifully in every dale of the series from Teesdale southward to Calderdale, often beginning before houses and cultivated fields are reached. On the east it occurs by the side of almost all, if not all, the tributaries of Esk, Leven, Rye, and Derwent, that take their rise in the moorland country, in two or three stations in the Howardian district, and sparingly at the foot of the western and southern slope of the Hambleton Hills; but the wide tract of intervening level country it avoids entirely, except where manifestly carried down by the rivers. Taking into consideration, first, the rarity or non-existence of its cultivation; secondly, the nature of its localities and its frequency in them; thirdly and mainly, the fact that in the *ensemble* of its dispersion throughout the district it is quite on a par, nay, exceeds the commonest subalpine plants of the county, *Trollius europæus* and *Stellaria nemorum* for instance, I do not see that there is any reasonable probability that it has been introduced by human agency at any period however remote. A little lower down the gill I gathered *Hypnum heteropterum* and *H. chrysophyllum* upon shaded rocks, and crossing by a footpath to the high-road that leads to Beamsley, took another peep at Bolton Abbey, and in the evening returned again to Ilkley."

He exhibited specimens of four naturalized Grasses, gathered by Dr. Carrington in the vicinity of a paper-mill in the neighbourhood of Bury, in Lancashire,—*Panicum capillare, Setaria glauca, Digitaria sanguinalis,* and *Eleusine indica.* The three first-mentioned are natives of southern Europe, the other of Hindostan.

Mr. J. H. Davies exhibited examples of the following Mosses, viz. *Orthotrichum fastigiatum,* Kildare, Beech-trees at Ballitore; *O. tenellum,* Kildare, Beech-trees at Fuller's Court garden, and Willows by the Griese, below Ballitore; *Tortula papillosa,* North Yorkshire, on Hawthorn between Thirsk and Woodend.

BOTANICAL NOTES, NOTICES, AND QUERIES.

CARDAMINE HIRSUTA AND C. SYLVATICA.

Cardamine hirsuta, L.—Roots fibrous. Stems nearly erect, only slightly flexuous, with few, short, stiff hairs. Root-leaves roundish, reniform, very slightly notched. Stem-leaves few, roundish, rarely elongated. Pods nearly erect, on short, half-erect pedicels, straight, nearly smooth, about twice as long as their pedicels.

C. sylvatica.—Roots fibrous. Stems stouter than in the above, with more numerous and longer hairs, more deeply channelled and more zigzag than the stem of *C. hirsuta*, rather more branchy and leafy. Leaves more notched, lobed and elongated. Petals larger. Stamens six. Pods not quite straight, on longer and more spreading pedicels.

These two plants have different aspects. *C. sylvatica* is more bushy, hairier, stouter, with larger flowers, and with the normal number of stamens. The more crooked stem corresponds to the more spreading pods, and the flexuous pods to the zigzag stem. The more lobed and elongate leaves follow the same apparent law of normal development.

The plant which I used to observe in the woods about Albury, in Surrey, on the red sand, was probably what Mr. Borrer calls *C. hirsuta*, and the strong, bushy plant which grew in the vale was probably the *C. sylvatica*. I presume all the plants which I observed in the woods about Clent, Worcestershire, were *C. sylvatica*, and the same as those growing in the vales. I would infer from these recollections that *C. sylvatica* is the commoner form, and that it is the plant usually described under the name of *C. hirsuta*. Mr. Babington describes the stem of the latter as rather leafy, a character which I would apply to the former. I lay little stress on the four stamens of *C. hirsuta*, because the number is variable in this Order, and especially in this genus. I also find the petals of *C. sylvatica* larger than those of *C. hirsuta*. Smith's description may suit either the one or the other form or species. The latter author ignores *C. sylvatica*, and merely states, "whatever the *C. sylvatica*, *umbrosa*, and *parviflora* of other authors may be, the Linnæan *parviflora* is clearly a distinct species," etc.

The names are not very appropriate, unless we may believe that they were conferred *antiphrastically*, viz. *hirsuta*, because the plant is *not* rough, and *sylvatica* because it grows in wet, hollow places, rather than in woods.

LINARIA PURPUREA.

Touching the *murality* of *Linaria purpurea*, the only two places where I have seen it undoubtedly wild were cornfields: one near Frimley, in Surrey, in the large cornfield noted by Mr. Watson as a station of that thumping plant *Arnoseris pusilla;* the other was on the Mont des Alouettes, a richly cultivated eminence in La Vendée, along with *Lathyrus angulatus*, a plant which will probably some day find its way here as an agrarian plant. The exact similarity of the habitat in these two cases satisfied me that *L. purpurea* has as much right to be considered a British as a French plant. J. S. M.

BENTHAM'S 'HANDBOOK OF THE BRITISH FLORA.'

The following question is asked by a correspondent:—"Have you yet seen Bentham's Handbook? . . . But if he is right in his immense reduction of species to varieties, how the poor little English Flora dwindles!" We have seen it, but that is all. Some readers of the 'Phytologist' may be better able to appreciate its author's labours in clearing our lists of a multitude of book-species than we are. It comes highly recommended, both by the *prestige* of its learned author and by the suffrages of men of the very highest botanical reputation.

BUCKWHEAT (*Polygonum Fagopyrum*).

"The flour of Buckwheat is made into thin cakes, called crumpets, in some parts of England, and is supposed to be nutritious—not apt to turn acid upon the stomach. The *seed* is excellent for horses, either whole or broken, mixed with bran, chaff, or grains. A bushel goes further than two bushels of oats, and mixed with four times as much bran will feed a horse for a week. Four bushels of meal will fatten a hog of sixteen or twenty stone in three weeks; eight bushels of meal will go as far as twelve bushels of barleymeal." This is taken from Miller's Dictionary, and if correct it is important that the agriculturist should know it.

Are the crumpets of the present day made of this meal? and is the wheat much cultivated in England? Why is it called *Buck*-wheat?

S. B.

HYPERICUM PERFORATUM.

Black dots of Hypericum perforatum *and other* Hyperica.—These are glands or processes or elevations which become black by the action of the air on their juices. It would be difficult to say what object they subserve in the economy of the plant or plants: it is but a barren subject. What are the uses of hairs, scales, down, and other cuticular appendages? Only general, and for the most part unsatisfactory answers, can be given to this and similar questions.

PYRUS AUCUPARIA.

In Worcestershire the Mountain Ash is called, vulgarly, the Witty-tree, and in Derbyshire the common folk give it the name of the Wickey: have not both these names a close connection with the Westmoreland one of Wiggen? and what is their common root, if they are so allied?

F. B. W.

EARLY PAINTERS AND PLANTS.—ASPARAGUS.

I have an engraving from a picture by Rubens, which represents Christ and his Disciples at the Last Supper. On the table is a dish which contains Asparagus. I wish to know if this is an *anachronism in painting*, and if there is any reason to be assigned for the painter's choosing to represent Asparagus *as the Supper food.* S. B.

BOTANICAL PROVERBS.

"Ill weeds grow apace." A single plant may produce—of

	Number of Flowers.		Seeds to each Flower.		Total.
Groundsel	130	×	50	=	6,500
Chickweed	500	×	10	=	5,000
Shepherd's-purse	150	×	30	=	4,500

This proves the truth of another proverb on the same subject,—

"One year's seeding
Seven years' weeding."

And if we grow weeds they will certainly seed, and the immense fecundity of a single plant should of itself impel us to avoid every source of weed-growth. Hence the lately enacted Australian law, for the eradication of weeds, is not a useless or vexatious legislative enactment. AGRICOLA.

A correspondent asks where he could obtain some seeds of the more showy herbaceous (exotic) plants in exchange for seeds of our rarer indigenous species. It is hoped that some of our readers may be able to tell our correspondent, whom we take the liberty of naming "W."

MEDICAGO MACULATA.

Black spots on the leaves of Medicago maculata.—These spots are always present on the young leaves, and there are some of these on the plant till it has nearly completed its period and performed all the functions for which it grew, viz. the ripening of seeds. The distinction between this species and *M. denticulata* is not very obvious.

DESIDERATA.

The undersigned is desirous of procuring a few seeds of *Mulgedium alpinum;* also he wishes for a series of British Saxifrages, named, for all of which he would give in exchange indigenous plants of Guernsey.—G. W., St. Andrew's, Guernsey, or A. I., 45, Frith Street, Soho, London.

ANSWERS TO CORRESPONDENTS.

Our correspondent, A. P., is informed that the celebrated traveller and plant collector in both the eastern and western hemispheres, Mr. Fortune, was Curator of Chelsea Botanical Garden, which office he resigned in 1848, and was succeeded by Mr. T. Moore, the well-known pteridologist.

Communications have been received from

E. N. Blomfield; John Barton; G. W.; Professor R. Bentley, F.L.S.; Henry Grove; W. Sutherland; W.; George Lawson, M.D.; J. S. M.; A. Jerdon; F. B. W.; Agricola; Rev. W. M. Hind; S. B.; J. Sim.

BOOKS RECEIVED FOR REVIEW.

The Atlantis; No. 2.
Sowerby's British Wild Flowers; Part 2.
Hooker's Species Filicum; Parts 7 and 8.

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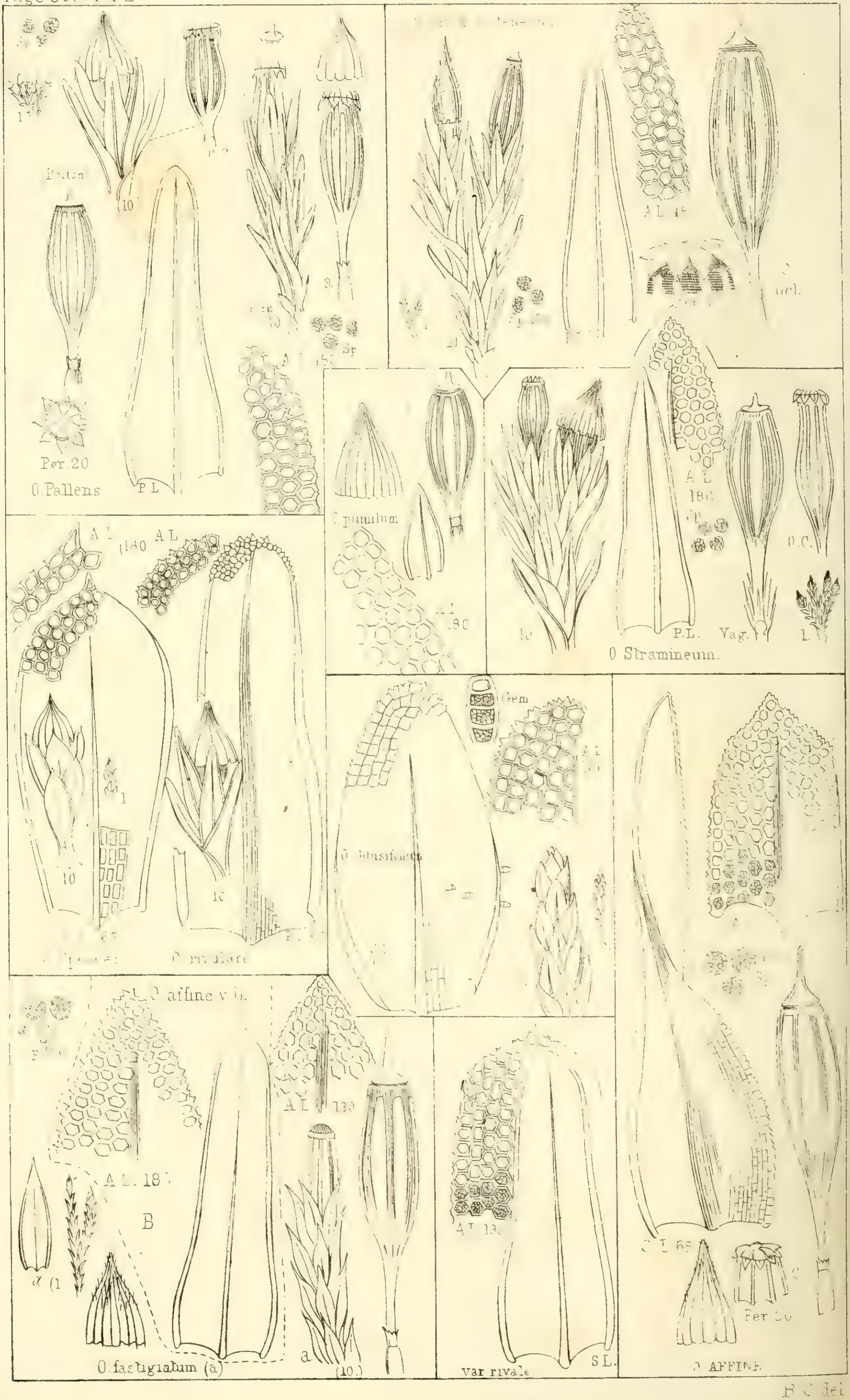
Per. 20
O.Pallens
P L
10
AL 180
Sp
AL
O pumilum
AL 180
10
P.L.
AL 180
Vag.
O.C.
1.
O Stramineum.
10
10
Gem
O obtusifolium
O affine var b.
AL 180
B
a
AL 130
(10.)
O.fastigiatum (a)
AL 130
var rivale
S L.
S L 65
Per 20
O AFFINE

R.C. del

ON THE ORTHOTRICHEÆ OF YORKSHIRE.

By B. Carrington, M.D. Ed., Fel. Bot. Soc. Ed., etc.

(*With a Plate.**)

No tract of country of equal extent in Britain can boast of so many *Orthotricha* as Yorkshire. Indeed, with the exception of *O. speciosum* and *O. Ludwigii,* all those which have been recorded as British are found within the limits of the county. The species delight in wooded valleys and the neighbourhood of streams impregnated with salts of lime; and where shall we find lovelier valleys than occur between Teesdale and Airedale, or purer streams than those which rising in the Pennine chain unite in the great vale of York? Nor are they less abundant amongst the oolitic moorlands watered by the Esk and Derwent. But although plentiful in the North Riding, and upper half of the West Riding, south of the Craven fault, where the grits and sandstones of the coal measures preponderate, scarcely a single specimen can be met with. It is chiefly to the new species that I would direct attention, and especially to those like *O. tenellum* and *O. pallens,* which are liable to be mistaken for small states of *O. affine.* The stations for the rarer species are taken from an examination of Mr. Baker's collection, and my own observations. I have also to thank Mr. J. H. Davies and Mr. Nowell for their kindness in sending me specimens.

The history of some species is yet far from perfect, and I shall be thankful to readers of the 'Phytologist' for specimens, or observations bearing on disputed points. The species should be compared in their places of growth, and their habit and time of maturation noted.†

ANALYSIS OF SPECIES.

A. Pedicel generally shorter than the capsules. Leaves gradually tapering from the base, not contorted when dry, margins reflexed; papillose. Ochrea distinct. Monoicous except 7 and 13.—Orthotrichum, *Bry. Eur. Consp.*

* *Peristome single, not reflexed when dry.*

1. *O. anomalum,* Hedw. Whole plant rufous; capsule quite

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* For explanation of Figures, see p. 575.

† For a more detailed account of the Order, see Trans. Ed. Bot. Soc., Aug. 1848.

exserted, oblong, with 8 distinct striæ; teeth 8, bifid. Limestone walls, etc. Spring.

2. *O. cupulatum,* Hoff. Capsule immersed, obovate, with 16 striæ; teeth 16; calyptra convex, hairy. Limestone districts; common. Spring.

β. nudum; capsule exserted, calyptra naked. By streams. It is sometimes found on stones in streams liable to inundation, and, like other Mosses in such places, acquires a lurid tint. It may be distinguished from *O. rivulare* by the acute leaves, capsule with 16 ribs, and single peristome. Sometimes cilia are present in luxuriant specimens.

** *Peristome double, outer of* 8 *teeth, reflexed when dry.*

I. PUMILÆ. Capsule of *thick texture,* ribs 8, *prominent,* as *broad as the interspaces;* lid with a *short beak;* spores *small, brown.** Stems sparingly branched, forming small erect tufts (except 9), ¼ to ½ in. high, on hedges and exposed trees.

a. Leaves acute.

3. *O. tenellum,* Bruch. Leaves narrow, lanceolate, erect when dry; capsule exserted, subcylindrical, full brown; cilia 8; calyptra narrow, conical, yellow, slightly hairy. June. York, Sutton, Thirsk, Ayton in Cleveland, Bolton, Ilkley, etc., Wharfdale.

Stems slender, ⅓ inch long, simple or bifid. Upper leaves scarcely larger than the rest, of a pale pellucid green, erect when dry. "This is one of the most beautiful species, easily recognized by its narrow, elongated, golden-brown capsules, which are strongly ribbed when dry, and by its narrow, glossy, yellow calyptra." (Bry. Brit.) The calyptra in all the allied species is broad and campanulate. Vaginula naked, surmounted by a larger ochrea than usual; this is sometimes torn when old, and care must be taken not to confound it with the 'hairs' of *O. stramineum,* the capsule of which becomes narrow and contracted when empty.

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* The study of this section is beset with peculiar difficulties. The smaller species (except those with obtuse leaves) being frequently overlooked as varieties of *O. affine.* If attention is given to the above characters they may be at once separated. The capsule in *Pumilæ* is stronger; under the microscope the ribs are found to consist of four rows of large quadrate cells, as broad, or broader than the intermediate portion, which is formed of about four rows of smaller, oblong cells;—whereas in *Affinæ* the ribs are narrower, and the interspaces composed of about eight rows of cells, nearly double their width. The lid in *Pumilæ* is small, with a broad, ill-defined, reddish border, and a short beak; in *Affinæ* the lid is conical, with a long beak, and narrow scarlet border.

4. *O. stramineum,* Hornsch. Leaves lanceolate, lax when dry; capsule exserted, obovate, orange-brown; cilia 8 or 16, rough; vaginula hairy; calyptra campanulate, with purple apex. June, July. Teesdale, *Mr. Spruce;* Thirsk, Deepdale, Ayton, Cleveland, Guisborough, Studley, Malham, Wharfdale.

A fine species, often growing with *O. affine,* but with smaller tufts, and more acute, rigid leaves; capsule short, pyriform, orange-brown, with dark broad striæ. Outer teeth buff-coloured; cilia often 16, with traces of trabeculæ. Calyptra broad, convex, straw-coloured, the apex purple, slightly hairy. Best distinguished by the hairy vaginula.

5. *O. pumilum,* Dickson. Tufts minute; leaves ovate-lanceolate, imbricated when dry; capsule elliptic, nearly sessile, rounded below; cilia 8, short. Calyptra campanulate, naked, brown above. Very rare. April, May. Copgrove, *Rev. J. Dalton;* near Ripon, York, Cleveland.

β. *Leaves more or less obtuse.*

6. *O. pallens,* Bruch. Leaves pale-green, ligulate-lanceolate, obtuse, imbricated when dry; capsule immersed, elliptic-oblong; cilia usually 16; calyptra campanulate, naked, pale. May, June. Near York, *Mr. Spruce;* Mickley, *Mr. Baker;* between Bolton and Ilkley.

Forming small pale tufts. Upper leaves longer, almost ligulate, carinate; the nerve strong, reaching to the apex. Areolæ in this species, and *O. tenellum,* larger than in *O. affine,* but smaller than in *O. pumilum,* bearing minute papillæ. Capsule straw-coloured, with broad ribs, contracted below the mouth when old, passing abruptly into the short pedicel. Cilia slender, incurved, the intermediate ones shorter.

The Wharfdale specimens collected in various places are remarkable for having only 8 cilia, the capsule shorter, and deeper coloured than usual, approaching *O. pumilum,*—while the narrow obtuse leaves and pale calyptra agree in all respects with *O. pallens.* Extreme forms of the two appear sufficiently distinct, but if, as Schimper asserts, *O. pumilum* varies with obtuse leaves, and the form of the capsule and number of cilia in *O. pallens* are subject to variation, it must sometimes be difficult to distinguish them. I am imperfectly acquainted with *O. pumilum,* but specimens from Bruch have shorter, more acute leaves, larger areolæ, and are not papillose.

7. *O. obtusifolium,* Schrad. Dioicous; leaves ovate-obtuse, concave, with plane margins, imbricated, gemmiparous. Barren. Ash-tree near York, Sept. 1855, *Mr. Wilson.*

Leaves short, obtuse; nerve not reaching the apex, areolæ large, quadrate, bearing coarse papillæ. No other species has the margins plane.

(*O. Rogeri,* Brid., has narrow, ligulate leaves, lax and incurved when dry, carinate; it is monoicous).

8. *O. Sprucei,* Mont. Leaves lurid-green, elliptic-spathulate, apiculate; nerve weak; areolæ large; cilia 8; calyptra campanulate, naked. By streams. May, June. Banks of the Swale, Codbeck, Ouse, Wharfe, etc.

Stems much shorter than those of *O. rivulare;* leaves convex, broader in the upper half, imbricated when dry; areolæ two or three times as large. Whereas in *O. rivulare* the leaves are spreading and ligulate, broader in the lower half, carinate, with a strong nerve, margins more revolute; areolæ very minute; apex obtuse, subserrulate.

9. *O. rivulare,* Turner. Stems elongated, prostrate; leaves lurid, spreading, flaccid, ovate-ligulate obtuse; nerve strong; areolæ minute; cilia 16, long, arcuate; calyptra campanulate, dull-green, naked. Stones by streams. May, June. Found in company with the former. Dalton, Kilvington, Arnsley, Thirsk, etc.

II. AFFINÆ. Capsule of thin texture, leptodermous; *ribs about half as broad as the interspaces,* sometimes confined to the upper half of the capsule. Lid with a *long beak.* Spores *large, green.* One or two inches high.

10. *O. affine,* Schrad. Leaves of coarse texture, lax and undulated when dry, oblong- lanceolate, acuminulate; capsule narrow, tapering into the pedicel, pale; cilia 8, strong; calyptra conic-campanulate, pale-green, slightly hairy. Near the roots of trees, walls, etc. June, July. Capsules thin and furrowed when old, slightly contracted below the mouth. Lid long, with a scarlet border.

β. rigidum. Leaves more acuminate, rigid, erect when dry;

calyptra yellow, the apex brown. Exposed trees, in dry subalpine stations.

Stem-leaves yellowish, acuminate, those of the perichætium very slightly obtusate. Areolæ more distant than in the common form, with large papillæ.

Misled by imperfect specimens of *O. fastigiatum*, B. and S., from Schimper himself, in a paper read before the Edinburgh Botanical Society, May, 1858, I came to the conclusion that it differed in no essential character from the present variety of *O. affine*. I still think intermediate forms may be met with, but in deference to the opinion of Mr. Mitten, retain it as a species. It will be understood that the stations given for *O. fastigiatum*, except Greta Bridge, belong to the present variety. Compare the cell-structure of *O. fastigiatum* (*a*) with the varieties of *O. affine* *β*, etc. The engraver has represented some of the cells of *O. affine* filled with granules; we commonly find two or three apparent nuclei, perhaps the bases of papillæ.

γ. rivale; leaves lurid-green, very obtuse; capsule oblong, exserted on a longer pedicel; cilia shorter; calyptra narrow, lurid green. Trees by streams. July. Laskill, North Yorkshire. First found by Mr. Wilson near Congleton Cloud, Cheshire. A remarkable variety, apparently intermediate between *O. affine* and *O. rivulare*. The leaves are shorter than in the latter; areolæ larger; capsule pale and thin, with narrow striæ. Capsules shorter, less tapering into the pedicel, and peristome smaller than usual in *O. affine*. May it not be a hybrid between the two species?

11. *O. fastigiatum,* Bruch. Leaves broadly lanceolate, acuminate, imbricated when dry; capsule stronger, with broader striæ; calyptra yellow, with brown apex. Greta Bridge, Yorkshire. May, June. Through the kindness of Mr. Borrer I have seen the original tuft, and with the exception of two stems which seem correctly named, it belongs to *O. stramineum.*

Forming close, neat tufts. The perichætial leaves are acute, not obtusate, as in *O. affine*. The texture is thinner, with smaller papillæ, and rather larger areolæ.

*** *Peristome double, outer of* 16 *teeth.*
(*Structure of capsule as in* Affinæ.)

12. *O. rupestre,* Schleich. Leaves brown, acute, rigid; cap-

sule pyriform, wide-mouthed, faintly ribbed in the upper half; teeth erect when dry; cilia 8; calyptra brown, very hairy. Rocks. July, August. High Force, Teesdale.

13. *O. Lyellii*, Hook. Dioicous; leaves long and acuminate, squarrose, rough with papillæ and brown gemmæ; cilia 16, red, articulate; calyptra conic-campanulate, hairy. Trees in woods. July. Rare in fruit. Gordale, Malham, etc.

14. *O. diaphanum*, Schrad. Stems short; leaves ovate-acuminate, with rough, diaphanous points; cilia 16; calyptra campanulate, scariose. Trees and walls. May, June. Very common on hedges, etc. Leaves almost piliferous.

15. *O. leiocarpon*, B. and S. Leaves lanceolate, imbricated when dry; capsules smooth, without ribs; cilia 16, erose-articulate. Trees. Spring. The only species with a ribless capsule.

B. Pedicel much exserted, two or three times as long as the capsule.

† *Calyptra campanulate, smooth.*

16. *O. pulchellum*, Smith. Tufts small; leaves lanceolate, pale-green, somewhat crisped when dry; capsule small; outer teeth 16, red; cilia 16. Trees. May, June.

†† *Calyptra very hairy; ochrea indistinct.*—Ulotrichum, *Bry. Eur. Consp.*

1. *Leaves lanceolate, not crisped when dry.*

17. *O. Hutchinsiæ*, Smith. Tufts close, dark-brown or green; leaves rigid, opaque, appressed when dry; capsule subclavate, furrowed; teeth 16, paired; cilia 8. Alpine rocks. July. Stones in the Greta, *Mr. Borrer;* between Scawton and the Hambleton Hotel, *R. Spruce.*

2. *Leaves lanceolate from an ovate dilated base, crisped when dry.*—Crispulæ.

18. *O. Drummondii*, Hook. and Grev. Stems creeping; capsule oblong-pyriform, with distant ribs; peristome single, of 16 long, white, bigeminate teeth. Rare. Trees, alpine glens. August. Lowdale, Hackness, and High Force, Teesdale; Blea Beck, *A. O. Black;* Boltby and Highcliffe, *J. G. Baker.*

19. *O. Bruchii*, Brid. Stems erect; leaves yellowish-brown, perichætial leaves larger, erect when dry; capsules ovate-pyriform, olive-brown, apophysis rounded, seta long and twisted, ribs distant; teeth 8, coloured; cilia 8, of one row of cells;

spores large; calyptra very dark. Trees in woods. September. Very common in Yorkshire, often confounded with *O. crispum.*

20. *O. crispum,* Hedw. Leaves crowded, all spreading and crisped when dry, bright-green; capsule yellowish, elliptic-clavate, tapering into the stronger seta; ribs broad, close; contracted below the mouth when dry; cilia of two rows of cells; spores small; calyptra pale. Woods. July, August.

Much less common than *O. Bruchii,* from which it is known by the narrower, green leaves, remarkably contorted when dry; areolæ close, about half the size; capsule stronger, stramineous, and narrow, contracted below the mouth when dry; ribs as broad as the interspaces; cilia short and strong. In *O. Bruchii* the capsule is deeper coloured, more ovate, contracted at (not below) the mouth when dry, ribs half as broad as the interspaces, cilia filiform, and spores larger.

β. crispulum (*O. crispulum,* Bry. Eur.). Smaller in all its parts; capsule short, oval-pyriform; pedicel slender. Rare. Trees, subalpine glens. July, August. Teesdale; Forge Valley, Scarborough, *Dr. Black;* Woodend; Grithorp-gill, Boltby, *Mr. Baker.*

Capsule short, oval, with more distant ribs, less tapering into the pedicel. Leaves yellowish-green, areolæ rather larger, with strong papillæ. In pale-coloured varieties of *O. crispum* the cellules are more distant, and larger than in dark-green ones.

I have seen specimens with short capsules intermixed with those of the ordinary form, and intermediate states are sometimes met with.

O. crispulum is said by Schimper to ripen in May and June, but our specimens are in good condition so late as August and September; agreeing in that respect, as well as in the minute structure of the peristome, spores, etc., with *O. crispum.* The capsules of both forms are empty, and contracted before those of *O. Bruchii* reach maturity.

21. *O. phyllanthum,* B. and S. Leaves lanceolate, not dilated at the base, nerve incrassated, bearing at the apex a tuft of brown, stellate gemmæ. Trees, especially near the sea. Barren. Ingleby, Wharfdale, Scarborough, Clapham.

Explanation of the Figures.

The numbers attached to the figures indicate the extent to which they are magnified; thus, those marked 10, are magnified ten, and those 180, as many diameters. S. L. Stem-leaf. P. L. Perichætial leaf. A. L. Apex of leaf, enlarged to show the areolæ. O. C. Old or empty capsule. VAG. Vaginula. OC. Ochrea. GEM. Gemmæ. SP. Spores. PER. Peristome.

PLANTS OF PERTH.

Rare plants, found in the vicinity of Perth. *By* JOHN SIM.

1. *Moneses grandiflora,* stated by me to be nearly extirpated in Scone Woods, and indirectly yet facetiously remarked to have been effected by the Edinburgh students, for whom I entertain the most cordial goodwill.—I am happy to state, for the information of the readers of the 'Phytologist' and my Edinburgh botanical friends, that our lovely "gem" is not yet gone, but has just been found in another spot a little distance from the former, in moderate quantity. I received a good supply of it lately from a Scone gardener, who, along with my own boy, gathered it in the end of last June. My supply is now almost exhausted; some of it is in London, some in Yorkshire, some in Edinburgh, some in Montrose, and a very few plants with myself. If any botanist, wishing in future to obtain a supply, call at my house (No. 9, Commercial Street, Perth), I shall be happy to direct him to the spot where he will find it, upon condition that he is pleased with the stem-leaves and blossoms, and eradicate none of the plants.

2. *Scheuchzeria palustris.*—Upon a second visit to Methven Bog, in the end of last June, I discovered, to my great delight, in the north-west corner of the larger bog,—there are two contiguous bogs,—the *S. palustris* growing luxuriantly and plentifully. I brought home with me a good supply, above three hundred plants. Like the *Moneses,* it is nearly done. I have supplied my botanical correspondents with it: still there is some left, and any subscriber to the 'Phytologist' who wants a specimen may obtain it by application to me before the end of the month. I shall give as many as twenty specimens, upon condition that each applicant encloses a post-stamp, and is ready, if requested, to supply me with a specimen of any rare plant which I know to grow in his locality.

3. *Potentilla hirta?*—This plant has been known to exist on rocky, elevated ground near Kinnoul parish church for several years, I know not how long. An old surgeon here, who professes to be a botanist, some years ago showed me dried specimens of it along with *P. argentea,* which he affirmed to be only a larger or more vigorous state of the latter plant, and though by his persuasions he could then silence me, he never

could convince. I last year saw the plant in a living state, and at once the difference of the two plants, growing side by side, was evident to the most casual observer. I will not obstinately maintain it is *P. hirta,* but if not it must be *P. erecta,** only I am inclined to consider it the former. They are both European plants, the former a native of the south of France, the Pyrenees and Silesia, and flowers from May to September; the latter indigènous to Germany and the south of Europe, flowering in June and July. It is here, however, spread over an area of nearly an acre, and, as far as I have discovered, there may be from fifteen to twenty plants, varying in height from one to two feet, the larger plants often sending up six or eight large stems, with the flowers in large, erect, corymbose panicles. Should any botanist visit this locality, I shall be happy to let him have a look at it, in order to have a specimen or two. Provided he leaves the root he can take the branches. This I say for the benefit of others. It is very ungracious of any botanist to root up any rare plant; besides, it is seldom found necessary to have recourse to the root for the discrimination of species. How the plant reached this spot, so far from its botanical centre, as a botanical geographer might say, or by what agency it was brought, are questions which I am unable to settle. The plant is here, as any one may see, and "seeing is believing."

4. *Sedum dasyphyllum.*—This plant is considered by many eminent botanists of the present day to be an alien, or a stranger in the British Isles. From this opinion I dissent. It occurs in the neighbourhood of Perth, under circumstances and in a situation very unfavourable to such a conclusion. It exists here on an elevated, rocky moor of no great extent, about three-quarters of a mile south-west of this town, Perth, and grows along with *S. acre* and *Ornithopus perpusillus* on the elevated, rocky knolls of trap rock scattered here and there over a great part of this barren eminence. Excepting these three plants, and stunted bushes of the *Ulex europæus,* and some dwarf examples of *Erica cinerea,* etc., few other exogenous plants find here even a precarious existence, so bleak, exposed, and deficient of soil is this miniature wilderness. A few Lichens

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* It is a stouter and hairier plant than any form of *P. erecta* seen by the annotator.

and Mosses and Grasses, chiefly of the *Festuca* and *Agrostis* genera, with some few *Carices* in the less elevated places, compose the turf of this unproductive spot. Here, elevated about three hundred feet above the level of the Tay, and a mile west from its banks, the humble *Sedum dasyphyllum* finds on these barren rocks a salutary abode; in fact, it seems to be almost the only plant which appears here to thrive. Now for any botanist to see it there, and its general distribution on the thin stratum of black mould which sparsely covers these rocks, and say that the plant in question is an alien, I consider he is at least egregiously mistaken. It is stated in most botanical works to inhabit old walls, and near houses. Here a house never stood, nor was ever a wall built. This barren spot is the resort of sheep and goats, who fail not to crop, and that "right early," the tender branches of *Ornithopus perpusillus*, it being seemingly sweet to their taste. The Sedums they leave untouched.

5. *Sedum album*, like its brother *S. dasyphyllum*, grows here plentifully in one locality, under more suspicious circumstances than the other, yet I would not for my part consider it alien. It occurs on the top of rocks, one mile from Perth, in Kinnoul parish, abundantly; by the roadside from the latter place to Dundee little else grows but itself except the common Ivy and some few plants of *Lepidium Smithii*. At the foot of the rocks *Geranium pyrenaicum* is plentiful.

Bridge End, Perth.

THE BOTANY OF THE ALMOND.

A Ramble on the Banks of the Almond and Methven Bog.

By JOHN SIM.

It was on a warm, sunny morning, early in August, 1858, that I left Perth by rail, in order to go in search of rare plants. I left the train at Almond Bank station, and walked to the "Auld Brig" on the Almond, distant from the station about a mile. I went up the right bank of the river about four hundred yards, and then crossed to the other side on stepping-stones. I now entered on botanical ground (so to speak), but, sorry to state, rather late in the season; however I endeavoured to do the best

I could. I entered the wood, but found nothing rare. The *Lonicera Periclymenum* was plentiful, and scented the air with its odoriferous blossoms; the *Ribes Grossularia* was also frequent, and in several instances in fruit; the *Pteris aquilina*, with its umbrageous fronds, was thriving under the shade; and *Mercurialis perennis* was abundant throughout the length and breadth of the plantation. Dissatisfied with my apparent want of success, I took to the left bank of the river, and travelling westward, soon found I was not to be altogether disappointed. On the river's brink rose the stately stems of *Campanula latifolia*, four feet high, and on my right-hand, on dry, elevated ground, *Verbascum Thapsus* reared its tapering stalk; but both these plants were in fruit and in too rigid a condition to be available for the herbarium. Immediately at my foot I discovered a large plant of *Astragalus Glycyphyllos*, extending its procumbent branches in every direction, but, unfortunately, like its other two neighbours, in fruit; however I considered this too rare a prize to let pass, so I opened the vasculum, and took a supply of the more slender branches, the robust were out of the question, being from three to four feet long.

Still steering up the bank of the river, and admiring the beautiful scenery, I was surprised at the number of mills for fulling or cleansing cloth. This river being rapid in its course, is well fitted for turning water-wheels, and here its speedy flight is taken advantage of. On passing upward still further, and turning the corner of the wood, I came to a huge precipice of red sandstone rocks overhanging the river, near the top of which the *Epilobium angustifolium* grew luxuriantly; lower down, on the shelving *débris*, I procured some straggling specimens of this lovely plant, while a few yards further up, on the earthy, shelving slope of this cliff, grew several truly colossal plants of *Astragalus Glycyphyllos*, four feet long, but also in fruit; the pods were two inches long, and strangely curved, being crescent-shaped. I took another supply here, but contented myself with the lateral shoots, as the main branches were almost like walking-sticks, being so robust. I now retraced my steps, and again turning the corner, I observed within the wood, at the back of the hedge, several plants of *Circæa alpina*; I took a few, and made for the railway station; on arriving there I found I had two hours to spare, so I turned westward by the Crieff road, and travelled for three-quarters of a mile, when I arrived at that noted bog in Methven parish, where *Scheuchzeria palustris* is found, the only known station in Scotland for this singular-looking plant. This bog, or rather, two contiguous bogs, consists of a larger and a smaller, the latter of extent about a quarter of an acre, the former five or six acres at least. The following plants I found in the bog:—*Scheuchzeria palustris*, plentiful; *Cicuta virosa*, in the sedgy ditch at its southern edge, frequent; *Carex limosa*, sparingly; *C. vesicaria*, plentiful; *C. stellulata*, abundant; *Rhynchospora alba*, sparingly; *Genista anglica* and *Molinia cœrulea*, on semi-peaty soil near its margin, plentiful; *Lastrea dilatata*, scattered here and there in the larger bog, while in both grew *Vaccinium Oxycoccus*, covering the entire surface wherever found. Two varieties of berries seem to grow here, the common egg-shaped and mottled form, and the other rather larger, between apple- and pear-shaped, and destitute of spots, the upper surface red, the lower yellowish-green. I could perceive no difference whatever in the form of the leaves or stems of either, only the difference in the colour and form of the two was very striking. The time now drawing near when the train would be due at Almond Bank station, I left the bog, and arrived in time, got in the carriage, and was in Perth in a quarter of an hour.

The season being too far advanced, most of the flowering plants were gone to seed (in fruit), so that my expectations in regard to the Almond were not realized. I went up that river chiefly in search of Ferns, but the most of these plants seemed to occupy the southern side, while I took the north. However there was little room for regret, as all the Ferns I saw on the right bank, among the trees and rocks, appeared to be the common sorts, viz. *Polypodium vulgare*, *Lastrea Filix-mas*, and *Athyrium Filix-fœmina*. There is no pathway along the right bank of this river above the "Auld Brig" (at any rate, as far as I went), the rocks forming, in many instances, an almost perpendicular wall, sixty to seventy feet in height. Below the old bridge (about a hundred yards), in a hedge near its left bank, grows the *Turritis glabra*, nearly extirpated; I went myself, in the end of June, and only could procure a few stunted examples.

From the "Auld Brig" of the Almond to the *new*, a distance of about two miles, the ground on the south side of the river is fertile and level, on the north side high and rocky. I only passed once that way (in May), but being early in the season, saw no plants of rare occurrence, except *Anemone nemorosa* might be considered an exception. From the "New Brig" on the Almond, till its junction with the Tay, a distance of a quarter of a mile, the ground is flat and low on both sides. Beside the bridge I found *Malva moschata;* further down, on the right bank, *Euphrasia officinalis, Astragalus hypoglottis, A. Glycyphyllos, Solidago Virgaurea, Lepidium Smithii,* and *Briza media;* on the opposite side, in a plantation of trees, is found *Lychnis diurna, Trollius europæus,* and *Valeriana pyrenaica.* I forgot to mention that among the gravel and stones, on the south side, I also gathered *Armeria maritima, Alchemilla alpina,* and *Silene maritima,* but neither in great quantity. The *Trollius europæus* and *Valeriana pyrenaica* I did not gather myself, but got them from others who gathered them only a few hours before; the other plants I saw myself. I gathered *Astragalus hypoglottis* two years ago, but this summer I could not find it.

These few desultory remarks are offered in full assurance that botanists will not cavil at them because they are plain words, written by a plain man. Facts are facts, and they are worth reporting, even though observed by a *plain* observer. The above are not second-hand facts; they were ascertained by myself. I hope the readers of the 'Phytologist' may like them. If they pass muster, and are unscathed by the censors, the critics, the querists, and all others of the same kidney (*hoc genus omne*), I may favour the Editor of this useful serial with some more of my botanical contributions.

GLENS CANLOCHEN AND DOLE.

A Visit to Glens Canlochen and Dole, Forfarshire.

By T. Barton.

It seems scarcely fair, while giving an account of the Flora of Braemar, to pass over in entire silence two localities which, though not geographically included within the limits of the district, are yet so near as to be quite within range, if Castleton be made head-quarters. These are the two glens whose names stand at the head of this paper,—the one, Glen Canlochen, forming the cradle of the infant waters of the Isla, which joins the Tay a little to the west of Cupar-Angus, in Fifeshire,—while the other, *i. e.* Glen Dole, forms the western fork of the valley of South Esk, which it joins about three miles above the hamlet of Clova.

My acquaintance with these two glens is rather limited, being only the experience of two visits, in the months of July and August, last year; but perhaps I may be able to afford some useful information to others, who may hereafter turn their steps northwards, as well as confirm by my own recorded observations, the habitats already discovered for the rare plants of those glens, if I throw together some of the notes made on those two occasions.

In the first place, I must express my firm conviction that Castleton of Braemar is a very much better starting-point for Canlochen, and I might almost add, for Glen Dole as well, than the Kirktoun of Clova, which is usually chosen by botanists. The accommodation at the first place is infinitely superior in every respect, and if a car be taken either to the foot of Glass Meal, or to Loch Callater, according as Canlochen or Glen Dole is the point aimed at, the actual distance to be travelled on foot is very much lessened. We will suppose ourselves then *en route* for Canlochen, and seated in a car which we have engaged to take us the first long drag of six miles up Glen Cluny. We leave the car at the narrow bridge where the coach-road crosses the Cluny water for the last time, in the ascent of the pass. Here the road winds away to the right, while we hold due south, following the course of the burn which comes tumbling down from Glass Meal in our front. The walk to the top occupies a good hour, but we beguile the way by gathering some choice plants on our road, —such as *Veronica alpina*, *Epilobium alpinum* and *alsinifolium*, *Sibbaldia procumbens*, and the var. *alpinum* of *Equisetum palustre*, all of which fringe the margin of the burn,—while higher up, on the flat swampy table-land, occur *Salix herbacea* and *Phleum commutatum* (Gaud.). In this same bog *Carex rariflora* and *aquatilis* have been gathered more than once, though we did not meet with either. This is a good beginning, and augurs well for our reaping a good harvest when we fairly get upon the ground. We cross the well-beaten track which leads from Glen Callater into Glen Beg, and thence to the Spital of Glenshee,—and in a few steps more Glen Canlochen bursts upon our view. And what a view it is! I have traversed a good many Highland glens in

Aberdeenshire, Perthshire, and Argyleshire, but I never saw one comparable to this;—Glen Phee, a few miles to the south-east, is indeed grander, but not so beautiful;—it is the combination of precipice, greensward, and feathery Larch which gives the especial charm to Canlochen, as well as the singular way in which it is shut out from the world beyond. From the spot on which we stand, we look down upon an immense basin, a mile and a half in diameter, and one thousand feet deep. The precipices immediately beneath our feet, as well as those on either side of the glen, vary from four hundred to six hundred feet in height, with a talus of *débris* at their foot, sloping abruptly down into the valley below. From each angle of the glen and gully in the rocks proceed little rills, which leap quickly down the steep grassy slope until they at last unite at the bottom of the glen and form a silver thread, winding its serpentine course through the bright greensward, till it is finally lost to view behind a projecting shoulder of the mountain, which, fringed with Larch-trees, completely shuts in the glen. These trees have been planted as a shelter for the deer, of which there are seven or eight hundred in this glen; and noble fellows they are, as they stalk majestically along the mountain-side in groups of fifty to a hundred, one monarch stag leading the way. But now to work. A few steps down the craggy precipices and what a goodly harvest greets our eyes! Almost the first thing I stumble on is the exquisite *Veronica saxatilis*, now almost past flowering, for it is the 29th of July, but the few blossoms still remaining testify to its beauties, and make one feel that no description ever has or ever can do it full justice. Every ledge is covered with crimson and purple tufts of *Silene acaulis* and *Saxifraga oppositifolia*, while almost every crevice contains a plant of *Polystichum Lonchitis*, some of truly giant dimensions. The luxuriance to which this handsome alpine Fern here attained was something extraordinary, and more particularly so to me, who had only hitherto gathered Snowdon specimens, which are of mere Lilliputian dimensions as compared with these. I brought away in triumph one frond from a magnificent plant, which measures $22\frac{3}{4}$ inches in length, and $2\frac{1}{4}$ inches in breadth, the length of the midrib of the longest pinna being $1\frac{1}{8}$ inches, and the whole number of pairs of distinct pinnæ 51. *Cerastium alpinum* and *Saxifraga nivalis* abound in many places, with *Salix reticulata*, *lanata*, *nigricans*, *myrsinites*, and *arenaria*. On the next ledges *Dryas octopetala* turns up, in flower and fruit, with *Saussurea alpina*, *Erigeron alpinus*, and next, that rarity of rarities, the gem of Canlochen, *Gentiana nivalis*, which seems to have thought this glen alone, of all others in Great Britain, so nearly like its native home in the Alps of Switzerland, as to condescend to grace it with its presence. I found it in two different places along the same ledge of rocks at the head of the glen, and my companion found it as well, and in much greater abundance, on some rocks on the eastern side. So there is little fear of its extinction; indeed the only wonder is that it should have been hitherto, as it seems, confined entirely to Canlochen. *Carices* abound, as may be supposed, of which the best are *C. atrata*, *vaginata*, *capillaris*, and *Persoonii*. *Alopecurus alpinus* also grows in several places, according to M'Gillivray and Gardiner, although we were not fortunate enough to light upon a specimen, together with *Juncus castaneus* and *Poa alpina*. We ought moreover to have found *Thlaspi alpestre* and *Mulgedium alpinum*, both of which have been gathered in the glen, but considering the short time that we spent there at each of our visits, we could hardly expect to find everything that was known to grow there. Such however is the profusion with which the rare alpine plants are dispersed, that a very short search serves to fill the vasculum of the delighted Lowlander, who never, in all his dreams of botanical treasures hidden in these Highland glens, ventured to raise his expectations half so high as the actual facts of the case would have justified him in doing. M'Gillivray thus sums up the charms of this glen, picturesque as well as scientific: "This is a most lovely specimen of a corry, to which there is nothing equal in the neighbouring county, either in its beautiful proportions, or its brilliant verdure, much less in the number of its alpine plants. It is bounded by rugged precipices, scarred and shattered, grey, black, red, and of various tints, some of them seamed with white quartz, and all overspread with shelves of bright-green grass, on which grows a profusion of alpine and subalpine plants, mingled with those of the valleys and plain. On the right, looking south, are two great masses of red porphyry, separated by a scar. The nearer margin is abrupt, and there is interspersed an avalanche of detritus between it and a narrow and low ridge of rock, also chiefly of porphyry, which in like manner is succeeded by a broad scar. There, forming the upper part of the valley, and immediately behind us, is a great fissured rock of hornblende, varying in texture, sometimes approaching to claystone, sometimes resembling greenstone. Red porphyry also appears in it, in the form of a vertical dyke; and there are intermixed masses of a kind of a mica slate, approaching in texture to clayslate. Then comes a very steep grassy declivity, and beyond it a more abrupt space, with dark scars looking as if formed in a serpentine. The rock however is a dark-coloured, somewhat micaceous clayslate. It consists of very thin undulated laminæ, glistening, generally so soft as to be easily grooved by the nail. The colour is blackish-grey; that of the powder, pale-grey. It is sometimes meagre to the touch, generally soft, often unctuous. There is scarcely any quartz in it, and it contains iron pyrites and protoxide of iron, and the laminæ of the slate are often coated with an iridescent film.

"Part of the rock at the head of the glen, that which is most productive of plants, is of mica slate, composed of laminæ of mica and quartz. The texture and aspect have however been altered by an irregular mass of trap, in the vicinity of which it has become compact, the quartz assuming a semi-fused, porcellanic appearance. This trap is an extremely tenacious hornblende rock, of crystalline texture, with uneven indeterminate fractures, and having a very little granular quartz intermixed. It may be ordinary hornblende-slate, or clayslate altered by the prophyry."

On our first visit to Canlochen, our ultimate distination was the Kirktown of Clova. We arrived in the glen soon after 11 A.M., but owing to the numberless botanical rarities which met our eyes at every step, and a detention arising from an awkward fix into which one of us contrived to get himself, it was nearly 5 P.M. before we left it, with the prospect of a weary tramp of ten miles or more before us, and over perfectly unknown ground. Passing through the narrow defile which forms the entrance to the glen, we arrived at the shieling, or highland hut, situated almost at the point of junction of the Canlochen stream and that from Glen Caness, which now appears a mile or so to the north-east, evidently very precipitous and grand, but not equal to the one we have just left. These two streams, after uniting their waters, form the river Isla. Our course now lay due east, and we began to ascend the steep slope of the mountain in order to cross the wide ridge of elevated table-land which separates Glen

Isla from Glen Dole, following the course of a little burn, the banks of which were fringed with *Salix arenaria*, Sm. At last, after a weary climb, we reached the level, and a dreary expanse it was: nothing but black peat, of varying degrees of consistency, studded with hassocks of grass, as far as the eye can reach;—however, we have not yet quite reached the watershed, for the streams still continue to run towards the west. A small lake, or rather pool, of blackest water, marks the highest point, and as we reach its margin, some rocks appear in the far distance, rising a few feet above the moor, serving to relieve the monotony of the view, and forming landmarks for us to steer by; now too we first catch a glimpse of something like a glen in our front, and our only misgiving is whether it may not be Glen Prosen instead of Glen Dole, for we feel little confidence in our maps, and indeed they are on far too small a scale to be of any great use. Had we been conscious of our whereabouts, we should have known that we were passing within a mile to the south of the Little Culrannoch, the station for *Lychnis alpina*; but all was unknown ground to us, and our main object then was to reach Clova before nightfall. In half an hour the rocks are reached, and to our infinite surprise and astonishment, we find that instead of their being only of some twenty feet elevation above the peaty moor, they are in fact the summits of some magnificent crags which descend perpendicularly on the other side to a depth of seven or eight hundred feet, and compose the western wall of a very deep and narrow glen which now all at once opens upon our view. Its depth is almost equal to that of Glen Dee, and it is, if anything, more striking, from being so much narrower, certainly not more than three-quarters of a mile from the spot where we stand to the top of the opposite precipices, with a yawning chasm 1500 feet in depth between us. This glen is in fact the far-famed Glen Dole. We had unconsciously steered straight for Craig Maid, the top of which formed the very rocks we had descried across the moor, and so, if we had had a guide with us, we could not have chosen our route better. The next thing was to get to the bottom of the glen, and a queer descent it was, down slopes of turf and loose boulders not very far removed from the perpendicular. When we arrived at the stream which wound through the bottom of the glen, the view looking up it was grand in the extreme. About a quarter of a mile beyond Craig Maid the valley forks into two, the ravine to the left being that so well known to botanists as that of the White Water, that to the right the Dole proper. A bold, rocky crag rises between these two ravines, looking like a giant guardian of the glen, and upon this the setting sun streamed with crimson splendour, causing the adjacent precipices to look far grander by the contrast of light and shade than they really were, and as they appeared in the sober light of the following morning. About a mile below Craig Maid, the Dole is joined by the Phee on the right, and Glen Phee gradually opens upon the view as we round Craig Rennet, which stands at the angle of the two glens, looking both ways. Another long mile, and we found ourselves at the uppermost farm of Clova, Acharne, close to which the Dole discharges its waters into the Esk, which comes down from the north. Here we exchange the uncertain sheep-track for a good car-road, nor are we sorry, for the night is fast closing in, and we have three more weary miles to tread before we reach Clova. This last piece of road is very uninteresting, and in every respect a great bore, for you feel you are getting further and further away, at every step, from the ground which you wish to explore; indeed, if accommodation could be procured at Acharne or Bradooney, which we were not bold enough to ask for, it would be a great saving of time and fatigue. These Clova sheep-farmers are by no means unimportant personages; indeed, the *on-dit* of the valley reports the owner of Bradooney to be worth something like £50,000, though the house in which he lives is the most unpretending, English-looking farmhouse in the world. At last we found ourselves at the hamlet of Clova, and bent our steps to the little inn, longing for rest and refreshment, for we had been incessantly on the move for thirteen hours, and had partaken of nothing beyond a sandwich since eight in the morning. To our dismay we found that all the beds had been bespoken just before our arrival by a party who had come up the valley in the opposite direction, and as for provisions, we find the whole village can produce nothing beyond poached eggs and bacon, so we must needs content ourselves with that, though we rather dread the consequences for the following day of partaking of such thirst-inspiring edibles. Grievously did we mourn that we had not sought for a night's rest at Acharne, and so saved ourselves the extra three miles each way; but we had to make the best of matters as they were, and, fortunately, through the kind hospitality of the minister, we obtained a bed at the manse, and closed a long and wearying day with a refreshing night's rest.

The next morning found us retracing our steps along the road which we had traversed the evening before, and in an hour we were once more at the entrance of Glen Dole. I proceeded to search the rocks at the base of Craig Mellon, the mountain immediately above Acharne, while my companion went on up Glen Phee. Nothing better than *Vicia sylvatica* rewarded my search, and I then went on into Glen Phee; but though we hunted the rocks for some time, we found nothing new or what we had not gathered on the day before in Canlochen. The principal rarities of Glen Phee are *Woodsia ilvensis*, which has been found there by Mr. Backhouse and some others, and the *Oxytropis campestris*, of which this glen is at present the only known British locality. Both of these plants are, however, very sparsely distributed, and the extent of the glen is so vast, that one might search all the likely places for days, and not light upon either, unless the exact spot was previously known. *Carex Vahlii* has also been gathered here by Professor Balfour.

Returning into Glen Dole, I found *Mulgedium alpinum*, Less., on the banks of one of the streams descending into the glen on the western side, in the locality assigned for it by Gardiner. This was a great prize, and I thought myself fortunate in securing three specimens still in flower. *Linnæa borealis* grows in abundance at the foot of Craig Maid. I have some specimens now in my herbarium gathered there in 1832, but we unfortunately missed the right spot, and so did not see it. High up, too, on the grassy slopes, is the spot where the *Astragalus alpinus* was first discovered in 1831. It had, however, no particular attraction for us, as we had already gathered it in profusion on the Little Craig-an-dal. Owing to want of time, we were neither able to search Craig Maid or the White Water, and therefore missed the many rare plants which grow in both these well-known and famous localities. The greater number, however, are common to Canlochen as well, which has been less searched, as being more inaccessible than

Glen Dole, at least from the Clova side, and yet, from the hasty observation I was able to make, it seemed to me that the former glen is much the richer of the two in its botanical products. Almost the only plants which do not seem to be common to both glens alike are the *Gentiana nivalis* and *Oxytropis campestris,* the former apparently confined to Canlochen, the latter to Glen Dole. On reaching the table-land above the glen, we followed the course of the stream of the White Water, which takes its rise in the bogs at the head of Glen Callater, and accordingly forms an excellent guide to steer by. The total distance from Acharne to the foot of Loch Callater is, as nearly as possible, ten miles. On the second visit we paid to Canlochen and Glen Dole, we were only out for a single day, and by taking a car six miles up Glen Cluny as before, and ordering another to meet us at the foot of Loch Callater in the evening, we were enabled to get two hours in Canlochen and two more in Glen Dole, and so combine the two without any difficulty. There is no reason, however, for thus visiting both on the same day; indeed, the walk from one to the other is almost the hardest part of the day's work, and it would be much better to approach Canlochen from Glen Cluny, and Glen Dole from Glen Callater, if Braemar be taken as a starting-point. I have dwelt thus fully upon topographical details in the belief that a few hints of this kind may be of some assistance to those who may hereafter visit this part of the Highlands, and in the hope of persuading them to pay a visit to one or other of these beautiful and most interesting glens whenever they chance to be as near them as Castleton. There is no hope of getting any information from the people of the country. Scarcely any one in Braemar could tell me even where Canlochen was, though only ten miles distant. The best way is to trust entirely to your own sources of information and such maps as you possess, and, with the hints above given, I do not think that any one could very easily mistake the right road.

The usual plan of making Clova head-quarters is attended with so many inconveniences that it presents insuperable obstacles to most tourists. In the first place, it is altogether off the regular track; and next, the accommodation is, as I said, of a very second-rate description. Castleton of Braemar, on the other hand, is quite on the high-road, and most accessible, as well as forming a most excellent centre of operations.

Cambridge, August 23, 1858.

HISTORY OF BIRDS IN CONNECTION WITH PLANTS.

I have often asked questions in 'Notes and Queries,' published by Bell and Co., Fleet Street, and received some answers; but I think upon subjects of plants and vegetable physiology the 'Phytologist' is a better medium of intercommunication. As a lover of Natural History, I always desire to test as far as possible the truth of statements written and published to the world upon that subject. We often find in works on ornithology reference made to trees, fruits, and flowers, for the truth of which, when questioned, we may properly apply to the botanist.

In reading Mudie's 'Feathered Tribes of the British Islands,' I find he gives the following account of the Missel-thrush:—"It is called missel-thrush because it missels (soils) its toes with the viscid, slimy juice of the Mistletoe-berries, of which it is very fond in the winter, and the Mistletoe gets its name because it soils the toes of the bird."

After reading this I remembered that many questions had been asked in the 'Phytologist' respecting the derivation of common names of plants, and I venture to ask, but am fearful of the result, whether Mr. Mudie will be any help to your readers upon the derivation of the word Mistletoe.

Some of the writers on ornithology tell us that the bird took its name from the plant, but Mr. Mudie says the plant took its name from the bird. I should say, if either is to have priority in creation, the plant has the better claim. I venture to suggest that both are wrong, and that the Mistletoe has its derivation from the Saxon, as stated in our dictionaries, and the bird has its name missel-thrush, synonymous with storm-thrush, because it always sings before storm and rain, or "mistle," *i.e.* rain, according to the Belgic or Low Dutch. The natural instinct of the bird enables it to feel that the rain sets in motion the snails, grubs, and other insects on which it feeds, and therefore it makes known its joy by singing. It is a common remark of country people that this bird perches on the high branch of a tree, and can see the storm coming; but be this as it may, it is nevertheless true that the blackbird, which feeds on insects similar to the food of the thrush, sings before rain, although perched on some low shrub in the middle of a copse.

Mr. Yarrall, in his account of this bird, says, "It is also called the holm-thrush, probably owing to its partiality to the oak, from the top of which this thrush will sometimes continue to repeat its song for an hour, and occasionally also has its nest in the oak. A good botanist has reminded me that the red berries of the plant named Butcher's-broom (*Ruscus aculeatus*), which grows in bushy commons, are called Holmberries, and as the missel-thrush is a decided feeder on berries generally, it may have acquired the name of holm-thrush from feeding on the holmberry."

Mr. Yarrall should have also been referred by the "good botanist" to the Holly (*Ilex Aquifolium*), which is also called Holm, and ascertained whether the thrush feeds on the berries of this tree, which is more common than the Butcher's-broom, and bears berries more plentifully. I never saw the bird feeding on the berries of the latter, nor do I believe the bird has any partiality to the Oak, not even that called Holm Oak, which I take to be the Evergreen Oak, called *Quercus Ilex*. S. B.

ATROPA BELLADONNA (INSANE ROOT).

Several notes have appeared on this subject in the 'Phytologist,' but nothing satisfactory to show that the *Atropa Belladonna* was the plant referred to by Shakespeare, and I observe that one of the writers in the 'Phytologist' states that this plant is not found north of Yorkshire. Mr. Knight, in his edition of Shakespeare, has a note on the words as follows:—"Henbane is called *Insana* in an old book of medicine, which Shakespeare might have consulted." I should much like to know what old book it was, and also if the root of Henbane, taken internally, would produce insanity or temporary delirium.

[Since writing the above, I find, on referring to Mr. Irvine's excellent work on British plants, recently published by Nelson, London, that he considers the *A. Belladonna* to be the "insane root," and I have no doubt he might refer your readers to some work in which it is so called.] S. B.

MANDRAKE.

In looking for an answer to the question of S. B., in the 'Phytologist' for October, 1857, I find in a Herbal, written by William Meyrick, surgeon, a description of the character and properties of this plant, and he concludes by saying, "that most of the idle stories concerning it appear to have originated from its being named in Scripture; and many persons have supposed, from the account there given of it, that it was a preventive of barrenness, but the plant does not possess any such qualities, nor is it clearly known what the plant named in Scripture, and translated Mandrake, is."

The question has been often asked why Rachel desired to have the Mandrakes, but I do not know that it has ever been satisfactorily answered. The following extract from Turner's 'Herbal' may throw a little light upon the subject, and enable some of your contributors who are interested in Scripture plants to make further inquiries:—

"Serapis and Avicenna write that the seed of Mandrag, taken in drink, *clenzeth* . . . ; and so writes Dioscorides of the same seed, many years before them; whereby it appeareth that Rachel, knowing the nature of the fruit of Mandrag, that she might cleanze . . . therewith, and thereby might be made the fitter to conceive a child herself, as well as Leah her sister, and Silfah her maid did."

A READER OF THE WORD.

THIRSK NATURAL HISTORY SOCIETY.

Botanical Exchange Club.

The monthly meeting of the Thirsk Natural History Society was held on the evening of Wednesday, the 1st of September. Mr. J. G. Baker communicated the following notices:—

"*The Manchester Barbarea.* In the Old Series of the 'Phytologist' (vol. v. p. 46), Mr. Borrer writes: '*B. vulgaris,* var. *intermedia,* of Buxton, in the 'Manchester Botanical Guide,' which has been mistaken by some for *B. stricta,* is nearest *B. vulgaris,* but presents some remarkable differences.' During a recent visit to Manchester I had an opportunity of talking over this plant with Mr. Buxton, at Dr. Windsor's; and a series of examples, with which Mr. John Hardy, of Hulme, has furnished us, leave little scope to doubt its identity with *Barbarea intermedia* of Boreau, as a comparison of the following epitome of the characters of the Manchester plant, which I have drawn up, with the original description in the 'Flore du Centre de la France' (vol. ii. p. 48), and that of Grenier and Godron, will show. Stem 1½–2 feet high, robust, angular, usually with several erecto-patent branches. Leaves lyrate-pinnatifid; the terminal lobes in those of the root cordate, and much larger than the lateral lobes; uppermost stem-leaves with the lobes all linear-oblong and entire. Flowers pale-yellow, moderate in size. Fruit-bearing raceme elongated. Silicles numerous, adpressed to the stem or erecto-patent, terminated by a short, blunt style. It may be known from *vulgaris* and *stricta* by its *præcox*-like leaves and short styles; from *præcox* by its more robust habit of growth, and by its closer and more numerous silicles, which are only about half the size of those of that species. It grows in several localities in the vicinity of Manchester, and at first was labelled *præcox* by the botanists who gathered it, but this nomenclature was given up when the true *præcox* was found. It is quite probable that it may have been passed over for *præcox* in other parts of Britain. Upon the Continent it is reported from several parts of France, from Belgium (Nyman, but not mentioned in Michaud's 'Flore générale de la Belgique'), and if *B. angustana*, of Boissier, be the same, as there appears reason to believe, from Piedmont. By Boreau its stations are given as 'lieux frais ou humides;' by Grenier and Godron, as 'lieux humides;' by Lloyd ('Flore de l'ouest de la France'), as 'champs en friche.' With us in this country, it seems to be confined to stations similar to those of *præcox*, cultivated fields and waste ground. If, with the first volume of the 'Cybele,' we rank *præcox* as an alien, then doubtless we ought to call *intermedia* an alien also; but if, with Babington and A. De Candolle, we admit *præcox* to a higher grade of citizenship, then, perhaps, we should be justified in placing this too in the category of colonists. A set of specimens is ready for distribution to our members.

"*Aremonia agrimonioides*. At our January meeting you will remember that I expressed a disbelief in the occurrence of this plant of the south of Europe, in a spontaneous state, in Perthshire. Through the courtesy of Mr. Sim we are indebted for examples from Scone Woods which prove that he has reported the right species; but he explains that at the Scone station it grows in proximity to a quarry into which the proprietor of certain extensive nursery-grounds is in the habit of pouring rubbish from his gardens; and it would appear that from this quarry both the *Aremonia* and *Potentilla hirta*, of which he has also forwarded a specimen (for a notice of which see the August number of the 'Phytologist'), have had their origin. Such being the case, it is no doubt quite safe to infer that in the other two places where the *Aremonia* has become established, it has been introduced under similar circumstances.

"*Cotoneaster vulgaris*. Mr. Flower writes from Beaumaris, 'The *Cotoneaster* is fast disappearing from the Great Orme's Head; two or three small plants are all that are remaining, and I fear that it will soon be added to the list of extinct species.'"

Reviews.

Papers read to the Botanical Society of Edinburgh. By George Lawson, F.R.S., S.A., F.R.P.S., F.B.S., etc. etc.

I. Remarks on dust-showers, with notice of a shower of mud which occured at Corfu on the 21st of March, 1857.

> "A singular meteorological phenomenon occurred here on Saturday, the 21st of March. The day was squally and showery; those light showers brought down a great quantity of mud; the next morning I found the cauliflowers covered over with this fine dust. On examining the surrounding fields I found the trees and every other object covered in the same manner. As some writers have asserted, and others have denied, that the same phenomenon is of frequent occurrence in Malta, I send you a few leaves with the precipitate still upon them, which will, I think, put the question to the test for ever. The second question is more difficult to solve; viz. is this native dust, or has it been imported by aerial currents from Africa? From the state of the weather during the three previous days, I am led to favour the latter opinion." (Extract of a letter from Mr. Mackenzie, Corfu, to Dr. Lawson.)

Dr. Lawson notices in detail similar showers of dust, which had fallen at different times and in different parts of the world, and quoted the opinions of learned men thereon. He found, on examining the mud of the Corfu shower, that it mostly consisted of quartzose sand.

II. A dust-shower, or simoom, which occurred near Bagdat, is the subject of a second paper. An account of this was published in the 'Literary Gazette.' Professor Quekett examined the specimen of dust, and found it also to consist of inorganic particles, such as quartz, sand, etc.

III. On the application of botany to ornamental art.

In this paper the study of plants, as illustrative of the laws of form and the relations of colour, is strongly recommended to artists. "By repeated copying," says Pugin, "the spirit of the original work is liable to be lost, so in decoration, the constant reproduction of old patterns, without reference to the natural type from which they were composed, leads to debased forms and spiritless outline, and in the end to a mere caricature of a beautiful original. It is impossible to improve on the works of God, and the natural outlines of leaves and flowers must be more perfect and beautiful than any invention of man." . . .

This paper was illustrated, and the illustrations "led to a discussion of the origin of the Trefoil as an architectural ornament, which was stated to belong to a very early period, although its extensive use during the Christian era was probably connected with the myth of St. Patrick and the Irish Shamrock. The differences of opinion that prevailed respecting the species of plants that formed the national emblems, were alluded to in detail. Such matters, the author observed, are of little importance in a botanical point of view; but it must be confessed, that when an artist asks such questions as—What plant is the Scottish Thistle? or What is the Irish Shamrock? and we cannot tell, it places botany in a humiliating light; and we are not to charge him with wanton neglect if he does not refer to nature in embodying these our national emblems."

There appear to be two ways of obviating this difficulty and removing this reproach. Botanists should attempt at least to come to some understanding on this point. The pages of the 'Phytologist' will be open to all discussion on these objects, if kept within due bounds. We do not indulge very sanguine hopes of unanimity even here, but we would give every one who has anything to say on the subject, an opportunity of giving publicity to his views.

The other suggestion is, that artists should study the subject for themselves, or in other words, make themselves perfect masters of the external forms, habits, associations, and combinative capacities of the plants which they mean to represent or to use in company with other subjects of their pencil. It would not be a heavy task to learn all the Scotch Thistles and English Thistles too, to distinguish them from each other, and to know them by their peculiarities. It would not be a great labour to get together and study a series of the Trefoils, or of all the Wood-Sorrels that grow in Ireland. Thus the artist might be in a condition to judge for himself, without relying on the botanist, who has no means of forming an opinion on the subject but by the fanciful representations of the designer. The question is rather antiquarian than botanical; and in the name of our botanical brethren, we protest that our being unable to identify the two national emblems in dispute, is no stigma on botany. This science, like other natural sciences, deals with present facts, not with heraldic antiquities. The botanist can show all the Thistles of Scotland, and the artist may compare them with their representations on the national shields, and judge for himself which is most like the copy; or he might compare the forms of the engraving or picture with some of the Thistles, and adopt that mode of representing it which approached nearest to the original; or what would perhaps be better, adopt the handsomest of the common Thistles, and produce a drawing from it, suitable to his purpose. This will not give much trouble. Any one of the commoner kinds, except the *Carduus arvensis*, might be chosen, and there are but two, the *C. lanceolatus* and *C. palustris*. Either of them will be an adequate representative of what is conveyed in the motto, "Nemo me impune lacessit."

IV. Remarks on certain glandular structures in plants.

In this paper Dr. Lawson points out that in several instances to which he refers, the glandular secretions were poured out both "upon the surface and into the cavities of the plant, and not stored up in its constituent cells." He also shows that both these, both the external and the internal cells, are of epidermal origin. He further remarks that the imbedded gland of the orange bears "the same relation to the gland of the *Cinchona*, as the conical receptacle of the strawberry does to the hollowed out receptacle of the fig."

There is another paper in this tract, on microscopical analysis. The readers of the 'Phytologist' will be pleased with this short though valuable contribution to botanical and histological science, and their thanks are hereby respectfully tendered to the author by the Editor.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Orchis apifera.

Two or three years ago I found an abundance of *Orchis pyramidalis* on the sand-hills of the Lincolnshire coast near Saltfleet, and was much surprised some weeks ago at the receipt of a beautiful specimen of *Ophrys apifera* from the same station. These hills consist *solely* of drifted sand. This is a fact for the explanation of which we must look to our ultra-geological botanists. W. F.

St. Bees, August 21, 1858.

Flowers of the Olden Time.

(*More "Things not Generally Known."*)

The floral beauties of Britain were confined to those wild-flowers which are today the delight of childhood. The eyes of the "barbarians" looked upon the modest Daisy, which then presented the same simple form which it does today. Primroses, nursed in the recesses of gnarled roots of trees, came forth in abundance in the spring; so did the Bluebell and the Violet. These familiar flowers, with Dog-Roses, Foxgloves, Traveller's-joy, flowering Heaths, and Water-Lilies, were the chief beauties of the bouquet of ancient Britain. Fuchsias, Balsams, Dahlias, Auriculas, Hyacinths, Pinks, Tulips, Roses, and a host of other beauties that now adorn our gardens and dwellings, were then quite unknown. Even the Wallflower and Mignonette were strangers to our land; and the Honeysuckle, which is now a common inhabitant of the hedges, came to Britain a stranger, and stole out of the confines of a garden to share the fortunes of our native wild-flowers. Nor was the state of the British Flora peculiar to the earliest period. It prevailed, with only slight additions and improvements, down to the sixteenth century! — *Philp's History of Progress.*

Extracts from Correspondence.

. . . I have made my projected excursion to Faversham, and have been rewarded by finding *Peucedanum* in the very place mentioned in Smith's 'English Flora,' a very little way out of the town, on the east bank of the river or creek which descends from it to the sea. It is so abundant as to be in no danger of extirpation, and, as you have never been there, it is worth while going to see it. The other plants I found in that neighbourhood are *Calamintha Nepeta*, almost as profusely as you have described your having found it in Essex; *Verbascum Lychnitis* on a wall, and *Hippuris vulgaris.* I next went to the Isle of Sheppey, where I enriched myself with *Inula crithmoides,* a plant I never before saw growing. I saw also *Spartina stricta,* and I should like to consult you on an erect Chenopodiaceous plant. I cannot even tell if it is an *Atriplex* or a *Chenopodium.* The enlarged calyx has not yet appeared, but perhaps it is not sufficiently advanced, though it sheds small, flat, dark-coloured seeds in abundance. When passing Strood, I went down to the old place by the river and found *Lepturus,* which I never happened to find in England before. The place is sadly cut up, not only by the railway, but still worse by brickmaking: however, there is still abundance of all the plants that used to be there—even *Glaux maritima*—except *Juncus maritimus,* which I did not see. I shall be happy to send you specimens of *Peucedanum* or *Inula.* Very truly yours, J. S. M.

August 11, 1858.

I hasten to inform you that in one of our botanical rambles on Saturday afternoon last (August 21), to Whitley Willows, about three miles from here, we gathered, on some marshy ground near a shallow stream, the rare *Polypogon monspeliensis* and *Phalaris paradoxa,* neither of them in very great quantity, but still sufficient to afford a few duplicates without eradicating the species. *Medicago denticulata* and *M. minima* are also growing near the same locality, the former moderately plentiful, and a single plant of *Lythrum hyssopifolium* was gathered there a week ago. If any of your correspondents would like a specimen of the three first-named species, we shall be most happy to exchange with them for species of equal rarity which we do not already possess.

CHAS. HOBKIRK,
Hon. Sec. Huddersfield Literary and Scientific Society.

P.S. A friend of mine brought me a specimen of *Potentilla fruticosa* which he had gathered in Bretton Park a few weeks ago.

Huddersfield, August 23, 1858.

ANTIRRHINUM MAJUS.

At page 530 of the 'Phytologist' for August, 1858, the query is put, relative to this plant, "Is it found wild anywhere?" I reply, Yes, on the fortifications in the island of Malta, abundantly; no escape there, or outcast from gardens. I was five years in Malta, and never saw it in a cultivated state. There it grows and there it luxuriates with other mural plants during the insupportable heat of June, July, and August, when every other herbaceous form of vegetation seems to be actually burnt up. My botanical dictionary, which contains generic and specific descriptions of all the known Phænogams in the world, up to 1820, confirms my statement, viz., "*Antirrhinum majus,* native of the southern countries of Europe, growing on rocks, under hedges, and on ruins." If the writer should ever visit Malta, he will find my statement to be no exaggeration. It is so abundant that there is no dread of its extirpation. *Linaria Cymbalaria,* its congener, is too abundant in Ireland to be either a fugitive or outcast ('Phytologist,' p. 531).—*Wallflower* (*Cheiranthus Cheiri*). At page 532 this plant is stated to be exclusively confined to walls, roofs, and ruins. This I deny. On the inaccessible cliffs of Kinnoul Hill, overlooking the Tay, it grows plentifully, alike defying the intensity of winter cold and summer heat. JOHN SIM.

Perth, August, 1858.

LASTREA FŒNISECII IN SUSSEX.

It may perhaps interest some of the readers of the 'Phytologist' to hear that I found *Lastrea Fœnisecii*, Wats., in Sussex, in the month of June, this year, near the village of Dallington, on the High Forest ridge, ten miles north of Hailsham. It has already been found at the Erridge Rocks near Tunbridge Wells, fifteen miles distant, and I have no doubt it will prove to be generally distributed over the country. I also gathered the true and typical *Lastrea spinulosa*, Presl, for the first time, although for two or three years past I had gathered a var. *L. dilatata* in the belief it was the former plant, and it was not until I came upon the true *L. spinulosa* in Dallington Forest that I recognized the very marked distinctions which exist between the two species. The outlines of the frond are most markedly different. Moore's figure is, I think, scarcely correct as representing the typical form of the species, which, so far as my experience goes, is a more lax plant, with pinnæ more distant than represented in his plate, and altogether more unlike *L. dilatata*.

J. BARTON.

Is it known to whom the poet Southey refers in this passage, under the name of "old Iolo"?

"There went with me
Iolo, old Iolo, he who knows
The virtue of all herbs of mount or vale,
Or greenwood shade, or quiet brooklet's bed;
Whatever lore of science, or of song,
Sages and bards of old have handed down."

SOUTHEY'S *Madoc*, p. I. viii.

POISONOUS PROPERTIES OF THE MOUNTAIN-ASH BERRIES.

On Monday afternoon, September 14, an inquest was held at Armley, near Leeds, upon the body of Joseph Murgatroyd, a child five years old. The deceased commenced vomiting on Friday afternoon, and died at eleven o'clock the same night. On a post-mortem examination, the remains of Mountain-Ash berries were found in the stomach, and Mr. Rickards, the surgeon, was clearly of opinion they had caused death. I forward this case because one of your correspondents seemed to think the Rowen berries were not poisonous. B. C.

September 20, 1858.

Sir,—I wish to know whether the berries of the Mountain Ash (*Pyrus Aucuparia*) are poisonous or not. In the 'Manchester Guardian,' which I send along with this, you will see that a child is reported to have been poisoned by eating them. The account of the case, as stated by a previous number of the 'Manchester Guardian,' is as follows:—"A lamentable result has just attended a case of poisoning by eating the berries of the Mountain Ash at Leeds. Joseph Murgatroyd, five years of age, son of Mr. Murgatroyd, clothier, Armley, had been ailing for a fortnight, but on Friday last he commenced vomiting dark matter, and continued to do so for some time. The surgeon who attended him, Mr. Rickards, thought he was suffering from pleurisy and disease of the kidneys, and treated him accordingly. The deceased, however, continued to suffer, and died at half-past eleven o'clock the same evening. On a post-mortem examination being made, the remains of Mountain-Ash berries were discovered in the stomach of the deceased, who had no doubt eaten them while in the fields. *Mr. Rickards was clearly of opinion that the deceased had been poisoned by these Mountain-Ash berries*, and the jury returned a verdict accordingly." Perhaps some of the readers of the 'Phytologist' will undertake to confirm or refute the opinion that the berries in question are poisonous. It is as well the public should know the truth. Once let the 'Phytologist' blaze forth the truth to its comparatively few readers, and the journals will soon lend it wings to reach the mass. E. G.

Grasmere, September 24, 1858.

. . . I would be very glad to know what Grass this can be. It is quite a stranger to me. It was observed growing along the highway-side between St. Alban's and St. Michael's, nearer the former place, indeed, not a quarter of a mile from the Abbey. I at first thought it might be a *Panicum* or *Digitaria*, but it is evidently a procumbent perennial Grass, and freely rooting at every joint. I hope you will be able to keep it, or at all events until its flowers are produced; on August the 12th, when I gathered it, none were visible. . . . W. P.

TOBACCO.

Professor Johnston, in his excellent work, 'The Chemistry of Common Life,' has the following:—"The crude oil of Tobacco is supposed to be 'the *juice of cursed Hebenon*,' described by Shakspere as *a distilment*," and he then refers to 'Hamlet,' where the juice of Hebenon is alluded to (act i. sc. 5). I wish to ask whether any distilled juice of Tobacco was used in Shakespeare's time, or was the plant known in this country?

S. B.

MANDRAKE OF THE BIBLE.

The Mandrake of the Sacred Scriptures is one of the *species dubiæ*. Sprengel, in his 'History of Botany,' states that it is *Cucumis Dudaim*. On the other hand, Dr. Adams, the learned editor of 'Paulus Ægineta' and commentator thereon, gives his verdict in favour of *Atropa Mandragora*. The question is here offered to the learned readers of the 'Phytologist;' and though it be a subject of curious speculation rather than of absolute certainty, yet it is worth consideration. QUERIST.

BOOKS RECEIVED FOR REVIEW.

The Critic, four numbers.
The Friend, for 9th month.

All Communications, Books for Review, etc., for the PHYTOLOGIST, should be addressed to the Editor, care of the Publisher, 45, Frith Street, Soho, London, where Advertisements are received until the 22nd of the month.

THE FLORA OF PORTLAND.

By HENRY GROVES.

Although the number of visitors that resort annually to Portland for the purpose of recreation must amount to many thousands, and guide-books setting forth the many objects of popular attraction multiply with a fungoid rapidity, yet, up to the present time, no attempt has been made to describe the Flora of this remarkable peninsula. With the idea of supplying in some measure this manifest deficiency, we have arranged the notes taken on our excursions in that locality, and place them before our readers in the form of the present paper.

Portland, although more frequently styled an island, is in fact a peninsula, being connected with the mainland by a long and noble ridge of pebbles, which do not owe their origin to the detached rocks of Portland, as has been supposed, but are to be referred to flints, etc., from the cliffs contiguous to Lyme Regis, whence they have been driven eastward by the prevalence of western gales. This fact was first pointed out by J. Coode, Esq., in a paper read before the Society of Civil Engineers. The general formation of the island itself is freestone, which lies immediately below the surface of a scanty top-soil, and at a depth of a few feet is traversed by a dirt-bed, rich in remains of Palms and Cycadaceous plants, the whole lying on a bed of fuller's earth. A good specimen of the trunk of one of the Palms alluded to, may be seen set up by the side of a house in the village of Fortuneswell. Before proceeding with the Flora of the so-called island, we will enumerate the most remarkable species to be found on the pebbly isthmus more generally known as Chesil Bank, the first word of which is a derivative of an Anglo-Saxon word signifying sand or gravel, and is also to be met with in the composition of other names of localities in Dorset, as Chesilbourne, etc. One day we had the hardihood to explore the whole length of this beach, but considering the great distance (ten miles), and the difficulty one experiences in walking on the loose pebbles, we cannot advise our friends to follow our example. However, should any one be desirous of accomplishing the feat, we strongly advise them to avail themselves of the thin line of dry *Zostera* to be met with at high-water mark. The two "lions" of the beach are undoubtedly *Lathyrus maritimus* and *Schoberia fruticosa,* and although they are more abundant on that part furthest from Portland, yet are to be found in small quantities within four miles of the island. *Chenopodiaceæ* is the reigning family, for besides the rare species already mentioned, we found *Atriplex patula,* with its variety *angustifolia,* also *A. littoralis* (in this locality the rarest species of the genus), *Schoberia maritima, Halimus portulacoides, Salsola Kali, Salicornia herbacea,* and *S. radicans* and *Beta maritima.* On such a decidedly maritime habitat, we cannot wonder at the number of genera with the specific title "maritimus" affixed; they number thirteen, and contain the following:—*Lathyrus, Schoberia, Beta, Plantago, Raphanus, Crithmum, Silene, Triglochin, Glaux, Armeria, Cakile, Alsine,* and *Eryngium.* Other plants to be met with are *Triticum junceum, Festuca uniglumis, Euphorbia Paralias,* and *E. portlandica; Trifolium fragiferum, scabrum,* and *arvense, Glaucium luteum, Convolvulus Soldanella, Saxifraga tridactylites, Erodium cicutarium, Sagina nodosa,* which, strange to say, is rare in this neighbourhood; and lastly, though most abundantly, *Geranium robertianum.* Many of these are to be found on the sandy waste near the "Ferry" bridge, which spans the back-water that separates the beach from the mainland. We must not forget to mention the curious fact of having found some examples of *Orchis Morio* on this sandy waste. The circumstance will appear more remarkable when we consider that the land owes its origin to the sands of the adjacent shores, and is constantly receiving fresh impregnations of salt from the spray of a boisterous sea.

Having disposed of the Flora of Chesil Bank, we will proceed to enumerate the species to be met with in Portland. A large portion of the noticeable Flora is to be found on the undercliff, which forms a belt that extends the greater part of the circumferential distance of the peninsula, being wider at the eastern and western sides, and diminishing gradually until it is finally lost altogether at those parts contiguous to the promontory known as the "Bill." On most parts of this undercliff the vegetation is abundant, notwithstanding the prevalence of *débris,* and the occurrence of huge rocks, which, greyed by the weather and incrusted with Lichens, present a beautiful contrast with the green tints of the thickets. Here the Burnet Rose loads the air with its perfume, and the bases of the rocks are covered with

Rubia peregrina, while, starting up from their more lowly neighbours, *Euphorbia amygdaloides* and *Stellaria Holostea* occupy an important position in the floral landscape. The shrubby plants are represented by *Viburnum Lantana, Cornus sanguinea,* and *Ligustrum vulgare. Geranium robertianum* and *lucidum* are to be found among the loose rock; the latter only at that part underneath the Barracks, on the Grove. Here also, growing in the open space, we meet with *Carduus acaulis, nutans,* and *marianus,* also *Carlina vulgaris* with *Asperula cynanchica. Lithospermum officinale* is very abundant, and towards the south is replaced by Borage, Bugloss, and Hound's-tongue. Perched upon the driest spots, or more frequently in the bare dirt on the cliffside, our limestone-loving friend *Poterium Sanguisorba* abounds, and *Helianthemum vulgare* occurs more rarely in somewhat similar spots. Lady botanists may here furnish their vascula with *Asplenium marinum, A. Ruta-muraria,* and *A. Trichomanes;* the latter may be found in great variety, some with the pinnæ placed alternately on the rachis, others with the leaflets so tiny that the serratures are altogether absent, and the fronds, drooping over the rocks, have the appearance of the trailing stems of the Bog Pimpernel. The other Ferns to be met with are the Male Fern, Polypody, *Pteris,* and Hart's-tongue. Dwarf specimens of the latter, bearing fronds not more than an inch in length, frequently peep from the little niches formed by the disappearance of some fossil shell from its rocky bed. Not unfrequently in similar situations *Hippocrepis comosa* fixes itself, flourishing on the mould formed by the decay of some less hardy plant that succumbed to the scorching sun and sapless rock. Among the *Cruciferæ* our principal ones are *Arabis hirsuta* and *Cochlearia officinalis,* being the variety *danica.* This latter plant, although scarcely so pretty as the Hairy Wall-cress, has this advantage, that it appears in profusion at that time of the year when vegetation in general has scarcely received the impulse of spring. It is especially pretty in those situations, as on rocks and walls, where the scanty soil gives no encouragement to a succulent growth, but at the same time allows its pretty pink flowers to bloom with vigour. In Orchidaceous plants we have little variety, but this is compensated by their comparative rarity; *Orchis pyramidalis, Spiranthes autumnalis,* and *Ophrys apifera* being the representatives. The former is seldom met with, except on the east of the island, but the latter is generally scattered throughout the island. The sides of the Chines and old quarries are adorned with festoons of *Clematis,* which contrasts beautifully with the dark green of the ivy-clad *débris.* Here and there *Inula Conyza* and *Solidago Virgaurea* form golden patches, but by far the most interesting plant is *Orobanche Hederæ,* which occurs sparingly here and there on the little ledges made by the trailing ivy-stems, which scarcely seem to suffer from this succulent parasite. We also found a few specimens of *Inula crithmoides* on an adjacent maritime cliff, but in a place so precipitous and out of the way, that few would care to gather it, should they be fortunate enough to discover it.

Among the loose rocks in the Chines the *Labiatæ* have some good representatives, the principal ones being *Calamintha officinalis, Salvia verbenaca, Teucrium Scorodonia,* and *Origanum vulgare.* Such is the abundance of essential oil in the first mentioned Labiate, that in hot sunny weather the air is thoroughly impregnated with its odour; indeed it was by this means we first became aware of its occurrence. Other plants to be met with in the same locality are *Circæa lutetiana, Sedum acre* and *reflexum, Iris fœtidissima, Euphorbia portlandica,* and *Scrophularia nodosa,* which, strange to say, is very seldom found within a distance of several miles hence. As we approach the south of the island, the cliffs gradually decrease in height, and the undercliff is altogether lost, but considerable interest is created by the number of seaworn caves, that penetrate for some distance inland. One of these, known as "Cave's Hole," is always shown to sight-seekers, who gaze with satisfaction on the tumultuous waves, through a hole about fifty yards inland. On rare occasions, in winter, the force of the waves is so great as to cause a column of water to rise through the aperture. On such cliffs we shall not fail to see *Crithmum maritimum* and *Statice spathulata,* and in one rocky gully *Fœniculum vulgare.** On the western side we find another undercliff, commencing in the first place with broad, unapproachable ledges, on which the herring-gulls breed in great numbers, occupying these ledges to the exclusion of the guillemots and puffins, which, together with razor-bills, prefer the caves and crevices at the south of the island. *Lactuca virosa* and *muralis* are to be found here, together with many plants mentioned before; also maritime varieties of *Sagina procumbens,* and the dwarf variety *pulchella* of *Erythræa Centaurium,* as well as *Alsine marina* and *Trifolium ornithopodioides.*

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* An obliging correspondent has directed our attention to the incongruous juxtaposition of this plant and Asparagus with Marshmallow, on the Spit, opposite Yarmouth, Isle of Wight. We cannot help these wild freaks of Nature; she will sometimes associate things separated by our greatest systematists. Whence came the Fennel that adorns the cliffs of Portland island?—from seeds or roots rejected from gardens in the vicinity, and swept round by the current? *Credat Judæus Apella.* We are content to receive the fact without troubling ourselves about the *vexata quæstio,* "Unde venit?"—a question that does but rarely get a satisfying answer.

In speaking of the "Grove" just now, let not our readers imagine a cool, shady retreat from the scorching rays of the sun, nor make up their minds to consume their luncheon by the side of some rippling woodland brook, for if we except the private grounds of Pennsylvania Castle, where a few trees do exist, we can scarcely find a tree on the island, and as for water, the nearest approach to a river is a ditch, and even these are few and far between. It is a curious fact that at Pennsylvania the only trees that could be found to resist alternately the boisterous western gales and summer drought were an outer ring of Sycamores, which, as they grew up, formed a protection for their less hardy neighbours. Under such circumstances we cease to wonder that Portland should be one of the most thirsty places in the world for a hard-working explorer, for besides the direct rays of the sun, from the universality of grey rock, he will have the further advantage of the reflected rays, which combination seldom fails to remove a facial epidermal layer. Consequent on this aridity, we fail to add to our list the interesting *Fluviales* and *Lysimachiæ* of meadow lands; at the same time, if there be no rivers, a few damp places occur here and there, for the most part near the shore, and in such localities of course *Equisetum Telmateia* and Coltsfoot abound. Here also *Carex glauca, vulpina,* and *hirta,* with *Eleocharis palustris,* spring up from among beds of *Sœmolus Valerandi, Apium graveolens,* and Forget-me-not (*M. palustris*). One of the best plants to be met with here is *Scirpus Savii,* being the variety known as *monostachys.* This variety, although agreeing with *S. Savii* in the markings of the nut, is readily distinguished by its scale-like leaves and solitary spikelet, which is barely overtopped by the lower glume. These characters appear to be invariable, from an examination of several hundred plants.

Viviparous specimens of *Juncus lamprocarpus* are not unfrequent; indeed, this species, together with *J. acutiflorus*, seems to be peculiarly liable to this phenomenon. In the former species the young plants are formed of stout, broad leaves, which are compactly bundled together, whereas in the latter the leaves are much narrower, and diverge in different directions, offering a remarkable contrast to, and easy means of distinction from the former.

We now propose to examine the sea-shore, where, on muddy spots, *Juncus cœnosus*, with *Aster Tripolium* and *Glaux maritima*, form the scanty Flora. Following our research still further seaward, we shall perceive large patches of *Zostera marina*, so interesting on account of its confervoid pollen and exclusively maritime habit. These patches are known to the fishermen under the name of grass-banks, and are much resorted to in the winter by flocks of geese (chiefly Brent) and other wildfowl, as mergansers and common scoters, who feed on the fronds that are found throughout the winter. Having finished with the Flora of the under parts of the peninsula, we propose to ascend the hill and examine the cornfields and rubbish-heaps. Here we shall not be less delighted than with the parts already described. . . . A few years ago, when Portland had not advanced so far in civilization as at the present time, when cruel Portland parents would not allow their fair daughters and hardy sons to intermarry with any one but native islanders,—when if you passed up through any of the villages, you had to run the gauntlet between rows of aborigines, who crowded to their doors to see the "Kimberlin," which, as a stranger, they were pleased to designate you,—then (for agriculture was in abeyance with the rest of industrial branches) the fields were only cropped once in two years, being left fallow the remainder of the term, and were crowded with the Bee Orchis and *Arum maculatum*. From the corms of the latter the famous Portland arrowroot was made in abundance, but the rotation of crops which has at length been adopted in the island has almost destroyed this branch of industry, so that instead of being able to procure some pounds, one can scarcely get as many ounces at the present time. In Professor Lindley's 'Vegetable Kingdom,' it is stated that the arrowroot is sent to London for sale under the name of Portland Sago, but, as far as we have been able to glean, and from living on the spot we have had the best opportunities for inquiry, the so-called arrowroot has never been so extensively manufactured as to admit of its being sent to London for sale, as it was disposed of in the immediate neighbourhood, consequently Londoners could only obtain it through some friend residing in the locality. At the present time, there are only one or two persons who make it, and the aggregate quantity is so small that we were unable to obtain any for ourself in 1857. It may not be uninteresting to describe the mode of manufacturing this arrowroot. The corms, which are dug up in June, are well washed, then bruised, and well stirred in a vessel of water; the coarser particles are then strained off, and the fecula, after repeated subsidence and washings, is finally dried in the sun, and the result is a starch well known as being one of the smaller varieties, yielding a jelly which, although inferior to Bermuda, is superior or equal to ordinary arrowroots. Although the new system has in a measure destroyed the *Arum maculatum*, it has failed to injure other plants of greater rarity, so that we still find a great abundance of *Lathyrus Aphaca*, together with some *Vicia gracilis*. The Euphorbias occurring in the cornfields are *E. helioscopia*, *exigua*, and *Peplus*, and on rubbish-heaps both *Mercurialis annuus* and *perennis*. *Ranunculaceæ* have good representatives in *Ranunculus arvensis* and *parviflorus*, besides the common species, as *Ficaria*, *repens*, *bulbosus*, etc., but its chief member is *Adonis autumnalis*, which is not uncommon in some parts, thanks to the fact that some of its seed ripens before the corn is cut. Other plants that occur in the cornfields and cultivated land generally are *Cichorium Intybus*, *Valerianella olitoria* and *auricula*, *Galeopsis Ladanum*, *Papaver dubium*, *Rhœas*, and more rarely *Argemone*, with the somewhat scarce *Specularia hybrida*. The *Umbelliferæ* present many worthy features: besides the species already mentioned, they number *Pastinaca sativa*, *Torilis nodosa*, *Petroselinum segetum*, *Pimpinella Saxifraga*, with other unimportant species, and it is highly probable that the rare *Œnanthe pimpinelloides*, L., is to be found here, for although we do not find it set down in our notes, yet it occurs so frequently in the neighbourhood of Weymouth that we should be liable to pass it by unrecorded. *Solanaceæ*, of course, are few, but they number *Hyoscyamus niger*, which seems to love a seaside habitat, and in such places to develope its narcotic principles in an extraordinary degree, and *Solanum Dulcamara* and *niger*. *Centranthus ruber* affects the stony sides of old quarries, but in such situations must yield in fragrance to *Artemisia Absinthium,* which on certain parts of the island is extremely abundant. The Toadflaxes are numerous and interesting, and are to be found both on cliffsides and cultivated ground; they number *Linaria spuria, vulgaris, Elatine,* and *minor,* the former ubiquitous in cornfields, the latter of more seldom occurrence. Of Grasses we have few worth mentioning besides *Festuca uniglumis*. *Alopecurus agrestis* is gradually being introduced from the cornfields of the adjacent mainland, where it is found to be a considerable pest to the farmers. In such a thoroughly limestone soil as that of Portland, we cannot be surprised with the frequency of *Avena flavescens* and *pubescens,* which are also largely distributed on all the chalky downs on the opposite side of the bay.

In conclusion we will say a few words about some species that are supposed to be locally extinct. *Vicia lævigata,* we are afraid, is undoubtedly so, as we have searched every beach within eight or ten miles of Weymouth, and could find no traces of it. *Polycarpon tetraphyllum* is another plant that used to flourish on and near the island, but which has not been met with of late years; nevertheless, we entertain hopes that it may yet linger on the extensive western undercliff, and reward some explorer, although we have failed to find it. A third plant, *Lavatera arborea,* used to grow wild both here and on the Chesil Bank, near Abbotsbury, but it is now only to be met with in gardens. There was a time when all the rugged heights of Portland were clothed with this Tree-mallow, but then Herbalism was rampant, and above all other Orders the *Malvaceæ* were selected for persecution; and every species, of whatever genus, whether *Althæa, Malva,* or *Lavatera,* were alike named locally "Marshmallow," and accounted among the "good-things." From its rarity, a preference seems to have been given to the species under remark, and the natives, in course of time, justly imagined it preferable to cultivate it in their gardens than to run the risk of their necks in obtaining it on the cliffsides. Another plant that has disappeared within the last two or three years is *Eriophorum polystachion,* which, although of frequency elsewhere, shows us that we can scarcely reckon from year to year on the occurrence of any plant, however common or rare. In conclusion, we advise any reader who may be visiting the locality to devote two days in exploring this interesting peninsula.

On the first day let him examine the eastern side as far as Pennsylvania Castle, whence he may return homeward by the main road. The second day take the western side, examining, as on the previous excursion, all the cornfields, undercliffs, etc., until he reach the main road by the same point as before; and if he fail to enjoy a good night's repose after each day's exertion, rest assured that it will not be for want of being thoroughly tired and "done up."

THE FLORA OF MATLOCK.

By the Rev. W. M. Hind.

Having on several occasions visited Matlock between June, 1849, and August, 1854, I venture to set before your readers a short account of the plants observed or gathered by me in that neighbourhood. As Matlock Bath is well known on account of its thermal springs, and not less for the beauty of its scenery, I may be well excused if I leave to the analytical chemist the description of the virtues and constitution of the waters, and to the tourist the account of the limestone cliffs which overhang the bright-flowing Derwent. It is not that I profess to be less affected than my neighbours by the beautiful and majestic in Nature, but that my present business is with the botany rather than the scenery of Matlock. As my observations were made on several occasions, I shall not attempt to do more than give a short notice of the plants which I have seen in the district, without a particular reference to the occasions on which they were observed. Omitting for the most part all mention of plants of everyday occurrence, I shall briefly refer to those that are less common, following, as far as may be, the order of the London Catalogue.

Corydalis lutea, DC., appears to be well established in the neighbourhood, growing on old walls and near buildings at Matlock Bath, Bonsall, and neighbouring villages. In no case did I find it removed from the dwellings of man. *Thlaspi virens,* Jord., may be peculiarly considered *the plant* of the neighbourhood. It is everywhere abundant on the barely-covered limestone, but, unlike the last-mentioned plant, does not affect the dwellings of men, nor take kindly to a cultivated soil. *Cardamine impatiens,* L., and *Arabis hirsuta,* Br., are both tolerably common in the village, especially near to the Old and New Baths. *Barbarea vulgaris,* Br., and *Reseda Luteola,* L., are both of common occurrence. *Helianthemum vulgare,* Gærtn., grows in rich profusion on the southern ascent of the High Tor. On Marden Hill, the highest eminence in the immediate neighbourhood of Matlock, *Viola lutea,* Huds., is plentiful, and occasionally the variety *V. amœna,* Syme, occurs. *Polygala vulgaris,* L., in all its varying shades of blue, purple, pink, and white, is found in rich abundance on the limestone soil. Not less common is *Arenaria verna,* L., and on similar soil. Behind the High Tor, in the Via Gellii, and in similar spots, it everywhere appears. *Malva moschata,* L., is tolerably common. Of this plant I found a variety near the railway station, having the lobes of the leaves so narrow as to bring them under the term linear. On the hill above the village of Matlock (a very different place from Matlock Bath), the *Tilia parvifolia,* Ehrh., grows apparently wild. *Hypericum perforatum,* L., *H. pulchrum,* L., *H. hirsutum,* L., are sufficiently common on the sandstone soil about Ambergate and Cromford Moor. *Acer campestre,* L., appears in small thickets and hedgerows. On Cromford Moor are to be found *Ulex Gallii,* Planch., and *Genista anglica,* L., the latter by no means abundant. *Genista tinctoria,* L., grows on the High Tor; *Anthyllis Vulneraria,* L., is plentiful in the same locality. *Rosa inodora,* Fries, I found on the summit of the High Tor; *R. arvensis,* L., is abundant. In the meadows *Sanguisorba officinalis,* L., is common, and on the High Tor *Poterium Sanguisorba,* L., occurs. On the face of the Tor, overhanging the river, and for the most part in inaccessible spots, *Pyrus Aria,* Sm., may here and there be seen. On the bank of the Derwent, near the village of Matlock, *Epilobium angustifolium,* L., sparingly appears. *Sedum album,* L., may be gathered on a dry wall near the Old Bath, but the locality is too suspicious to render it probable that it is its native habitat. Of the *Umbelliferæ* I met nothing worthy of note, save *Sanicula europæa,* L., *Pimpinella Saxifraga,* L., *P. magna,* L., and *Myrrhis odorata,* Scop., all four of which are common. On Cromford Moor I gathered *Galium verum,* L., and *G. insubricum,* Gaud.; *G. sylvestre,* Poll., on the High Tor; *G. anglicum,* Huds., near Ambergate; and near the village of Matlock, a species with hooked bristles on the granular fruit, which, though it be very different from *G. Aparine,* L., in habit and appearance, is most likely a variety of that plant. At the base of the High Tor I found a few plants of *Dipsacus pilosus,* L.; on its ascent *Scabiosa Columbaria,* L., in profusion; and on the summit *Knautia arvensis,* Coult., with a rare instance of *K. integrifolia,* Coult. In the large family of the *Compositæ* but few individuals require particular notice. *Tragopogon pratensis,* L., is plentiful in the meadows. Several of the *Hieracia* appear on the trap rock which rises through the limestone at the summit of Marden Hill. With the exception of *H. Pilosella,* L., and *H. murorum,* L., I dare not pronounce as to their exact species. *Serratula tinctoria,* L., and *Centaurea scabiosa,* L., occur plentifully on the High Tor, and *Inula Conyza,* DC., on the Heights of Abraham. Beside Ling and the two more common Heaths, with *Vaccinium Myrtillus,* L., and *V. Oxycoccos,* L., I observed no other plants of the same family on Cromford Moor. A sapling Ash, observed on the High Tor, deserves particular notice, as its leaves were much longer than in the ordinary state, and the leaflets were much elongated and very narrowly lanceolate; by this time it must have attained a tolerable growth, if not disturbed or choked in the thicket. *Erythræa Centaurium,* Pers., is very plentiful in the Via Gellii. *Polemonium cœruleum,* L., and *Verbascum Lychnitis,* L., though not found, so far as I am aware, in the immediate neighbourhood of Matlock, are both tolerably abundant at Haddon Hall, near Bakewell. *Melampyrum pratense,* L., occurs plentifully on the High Tor and Cromford Moor; *Scrophularia Ehrharti,* Stev., I gathered near Cromford village. *Linaria Cymbalaria,* Mill., is common both at Matlock Bath and near the Cromford station. *Origanum vulgare,* L., and *Calamintha Clinopodium,* Spen., are both of frequent occurrence, as also *Stachys Betonica,* Benth. *Taxus baccata,* L., appears in several places, without much doubt as to its claim to indigenous growth. Among the *Orchidaceæ* were collected *Orchis pyramidalis,* L., near the footway, leading to Bonsall, over the hills, and *Habenaria viridis,* Br., on Marden Hill. *Ophrys apifera,* Huds., and *O. muscifera,* Huds., are both found in the neighbourhood, and sold to the visitors at Matlock Bath. *Convallaria majalis,* L., is very abundant in the Via Gellii and the thickets of the High Tor. On Cromford Moor I collected *Juncus compressus,* Jacq.; the more common Rushes are plentiful. A variety of *Carex muricata,* L., of rank growth, and having its carpels elongated and twisted, occurs at the back of the Heights of Abraham. *C. strigosa,* Huds., is abundant on the banks of the Derwent, near the Lovers' Walk. *Koeleria cristata,* Pers., grows on the High Tor, and *Poa alpina,* L., on Marden Hill. The Ferns are very fairly represented in the neighbourhood. *Polypodium vulgare,* L., as may be supposed, is common; *P. Dryopteris,* L., grows on the hill above the Old and New Baths, and *P. calcareum,* Sm., occurs in various spots; it is found in rich luxuriance on the north face of the Heights of Abraham. *Cystopteris fragilis,* Bernh., is very abundant on the limestone and tufa. I do not recollect meeting *Lastrea spinulosa,* Presl, or *L. dilatata,* Presl, on the limestone soil, though they occur plentifully as soon as the sandstone near Cromford is reached; in fact the character of the vegetation marks the geological character of the soil as distinctly and surely as does the underlying rock itself. *Athyrium Filix-fœmina,* Rh., with its varieties *A. rhæticum,* Roth, and *A. molle,* Hoffm., is abundant. So far as my observation goes, *A. molle* is confined to the sandstone in this neighbourhood. *Asplenium viride,* L., though occurring further to the north of Derbyshire, I have not observed near Matlock. *A. Trichomanes,* L., *A. Adiantum-nigrum,* L., and *A. Ruta-muraria,* L., are sufficiently common. The native *Scolopendrium, Blechnum,* and *Pteris* are, as may be expected, all to be found. *Botrychium Lunaria,* Sw., was gathered on Marden Hill, and at no great distance *Ophioglossum vulgatum,* L. I believe that the district will well repay further search, and possesses many floral treasures that have escaped my eye.

BOTANICAL SKETCHES.

CHAT MOSS.

This locality enjoys greater celebrity in the history of railway engineering than it does in the annals of botany. The eminent engineer, Mr. George Stephenson, whose biography is so celebrated, succeeded in carrying a railway (the Manchester and Liverpool) across this bog, a triumph of skill and energy. It is reported that he learned the process from the farmers in the neighbourhood, who were in the habit of forming roads over the surface of the moss by covering the bog with hurdles or with fagots, and then put a layer or a thin stratum of something over this elastic material. But the vegetation of the Moss is our proper subject, and therefore its railway and the mode of constructing it must give way to humbler topics. A friend from Leigh accompanied the writer of this sketch, and the early part of the journey was accomplished in a track-boat which plies between Leigh and Manchester. The former place was left at half-past six in the morning, and at half-past seven the borders of the moss were reached. Much of it is now cultivated, and was then producing excellent crops of potatoes, oats, and wheat. Some small portions are planted with Scotch Firs, and the vigorous, healthy appearance of the trees shows that Chat Moss may be profitably occupied by plantations.

The rent varies from ten to twenty shillings per statute acre.

There are some holdings on it of considerable extent. Besides the railway officials and servants attached to the two stations on the moss, there are a few occupants who have ventured to settle on this dreary spot.

The vegetation is but scanty. The number of plants is but small. A great variety of species, or numerous different sorts, are not to be expected on a bog of decayed and decaying *Sphagnum,* averaging two or three yards in depth. The most prominent plants are the three common Heaths, viz. *Calluna vulgaris,* or common Ling, a name etymologically from the same root as linen, *linum* (flax), line, etc. All these names indicate the useful purposes to which the plant is applicable. In the Highlands of Scotland ropes or bands are, or were, twisted of Ling, and used for securing the thatch on cottages. One of the Heaths, *Erica Tetralix,* was found with pale or whitish blossoms. The white or hoary Ling was not uncommon.

Eriophorum angustifolium, with its very near relative, *E. polystachion,* which many botanists call a species, was now very conspicuous with its snow-white plumage waving in the breeze. But there was no breeze when we were on the moss. The atmosphere was foggy, and now and then there was a slight, drizzly rain, but the Cotton Grass, or the *Canna*, as the bards of Ossian's country delight to call the plant, is beautiful even when motionless.

> "What is fairer than the *Canna*, waving in the breeze,
> When summer laughs in flowery pride, and verdure clothes the trees?"

The Celt probably had never read, or possibly may have forgotten, Pope's celebrated denunciation of the above rhyme. Chat Moss had not a joyous aspect. It had no pretensions to "flowery pride;" dull and sombre was it, like Vallombrosa in a dark, autumnal day. Yet the hoary-bearded *Canna* was beautiful even in its stillness. Three species of *Eriophorum* grow here and on all the mosses about Manchester, viz. *E. vaginatum*, *E. angustifolium*, with its variety, *gracile*, Smith, not *E. gracile*, Koch, and *E. polystachion*, if it be a genuine species. These being all in fruit were at this period, the 13th July, the showiest of the Chat Moss plants. The Lancashire Asphodel (well named, for it abounds in Lancashire) here and there exhibited in patches its pretty starry-shaped, deep-yellow flowers. The Moor-Grass, *Molinia cœrulea*, was universally diffused.

The most interesting plants on all the bogs in this part of the country are the *Droseras*, or Sundews. It is hard to say whether *D. rotundifolia* or *D. anglica* be the most common. The intermediate form, well named *intermedia* by Hayne, is not so common as the two species that exhibit the extreme states of the British species.

In Chat Moss *D. anglica* is nearly as common as *D. rotundifolia*. There are here and there considerable depressions of the surface, places whence peat had formerly been dug out, now filled with *Sphagnum* (Bog-Moss). On the decaying roots of these the long-leaved Sundew grows. It may, like the commoner species, grow on the peaty mould, but I did not collect any specimens to which the decaying *Sphagnum* did not adhere.

D. intermedia grows along with both the others, but it is not quite so abundant in the parts of the moss which we visited.

Andromeda polifolia is very plentiful in all parts, mingled with the Heath or Ling. None of it, however, was in flower so late as the 13th of July. Specimens were collected in fruit. In the Floras it is said to grow on mountainous parts of England and Scotland: this is no doubt partly correct. The mosses about Manchester, where it grows freely, are as flat as a pancake, and not many feet above the level of the tide at high-water. In June it may be expected in flower. The Cranberry is plentiful enough, trailing along the surface. Its berries are not abundant. *Vaccinium Myrtillus,* the Bilberry, grows on drier parts, but it is not very common. One of the *Pyrolas,* either *media* or *rotundifolia,* was reported from a fir-wood in the neighbourhood of the moss, but this statement needs confirmation. It is to be wished that some of the more active, zealous botanists in Leigh and Tyldesley would either confirm or negative this report.

The *Utricularias, Pinguicula,* and *Parnassia,* do not honour Chat Moss with their company. But there were two exotics seen which are not commonly found of spontaneous growth on British Mosses.

In an old marl-pit, near what is called a tramroad, which crosses the moss and joins the railway not far from Astley station, we saw a single plant of Rhododendron, probably a European species, but the American species being equally hardy, it might be one of these. In the same old marl-pit there grow, or grew, several plants of *Osmunda regalis.* The origin of the Rhododendron on Chat Moss was soon accounted for. After crossing the tramroad, we entered by a wicket into an enclosure, a sort of lawn, terminated by a small residence. This place, " where," as the poet says,

> " Once the garden smiled,
> And still where many a garden-flower grows wild,"

abounded in what are called American shrubs, and in the remains of the hardier ornamental herbaceous plants. Among these we saw many Azaleas, Rhododendrons, Sedums, Peonies, Convallarias, etc. etc. The Rhododendron in the pit probably sprang up from a seed which had been wafted thither from the now deserted garden. The other foreign plant is *Ledum palustre,* which was found in Chat Moss and taken to the Medical School in Manchester. This I did not see, but the botanical lecturer of that institution did, and heard, or was told, that it was collected in the centre of Chat Moss. Its existence there may be attributed to the same cause or causes which have been assigned as accounting for the origin of the Rhododendron.

On the sides of the railway *Orchis maculata* and *Listera ovata* occurred, the former plentifully, the latter not sparingly in spots.

Achillea Ptarmica, Goose-tongue or Sneezewort, was plentiful enough, but barely in flower.

The only Ferns observed on the moss were *Lastrea dilatata* and *Osmunda regalis:* the latter is scarce, and except in one spot, viz. in a ditch by the rail, not far from Bury Lane station, we saw no flowering fronds, nor fronds of any sort, above six or eight inches long.

Just outside the marsh, on a bank, we noticed fine plants of *Epilobium angustifolium* flowering beautifully, and, in the corn-fields adjoining, *Viola tricolor, Lepidium campestre, Galeopsis Tetrahit,* and probably *G. versicolor,* not yet in flower.

Hypericum quadrangulum, Rhynchospora alba, Lathyrus pratensis, and *Epilobium palustre,* with the above-mentioned, constituted almost all the plants we saw in a walk over the Moss of about four hours, and probably of an extent of six or seven miles. The vegetation of Chat Moss is probably a fair specimen of that of all the mosses in South Lancashire.

On the Fertilization of Imperfect Flowers.

(With a Woodcut.)

Dinant-sur-Meuse, July 9, 1858.

Sir,—In No. 31 of the 'Phytologist,' page 279, under the head of "*Lamium amplexicaule,*" one of your contributors, after mentioning the fact that these plants produce perfect carpels from unexpanded flowers, observes that the same occurs in several species of *Viola.* He then asks if any botanist has "ever noticed stamens and pistils where the flowers have not been developed?" etc., adding that "it would be desirable to notice exactly the parts *present* in these fertile imperfect flowers." This challenge seems to have passed unnoticed, as up to this date I have not seen any answer to your correspondent's inquiry in your Journal.

Having met with an article in the 'Botanische Zeitung' (No. 43, of last year), which seems to give all the desired information on the subject, and believing this purely scientific periodical to have a limited circulation in England, I take the liberty of enclosing a translation from it, which I trust may prove interesting to you and your readers.

Allow me to take this opportunity of answering another question. In your excellent 'Manual of British Plants' you ask if *Anagallis arvensis* and *cœrulea* are ever found growing together. I cannot say how the case may be in England, as I have never found the latter there in a wild state, but in the part of Belgium (the banks of the Meuse) where I have resided for several years, they grow plentifully together on the *limestone;* on the shale that composes great part of our rocks, I have never met with *A. cœrulea.* H. C.

On the Fertilization of Incomplete Flowers of some species of Viola.

Communicated by DANIEL MÜLLER, *of Upsal.*[*]

It is well known that several species of the *Viola* tribe bloom during the summer with incomplete (*kronen-blattlos*) flowers, and yet bear seeds plentifully.

It occurred to me to fertilize a *Viola elatior* before it came to maturity, with the pollen of *Viola tricolor maxima.* The first, in good soil, frequently attains an ell or more in height, and I already saw, in fancy, little *Viola-tricolor trees,* loaded with beautiful blossoms. On opening an unexpanded bud, however, to remove the anthers, I was surprised by a peculiar arrangement. I found only two stamens, the others being scarcely indicated. The pistil, which in perfect flowers rises 2 millim. above the anthers, was here bent down, so that the stigma touched the upper end of the pollen-sac (anther-lobes), and the leaf-like prolongation of the filament, peculiar to the *Viola* family, was bent over the pistil. When I cut the filaments at their base, they remained hanging to the stigma, as if they had grown to it. In smaller or younger buds I did not observe this union, and therefore concluded that, in the former, fertilization had already taken place; in others, which had been longer fertilized, and in which the fruit had already acquired from 2 to 4 millim. in length, the little stamens were still hanging to the stigma; they were detached at the base. All this induced me to make further observations on the buds of this *Viola,* and I ascertained, with only a slight magnifying power, that just before fertilization the anthers certainly did contain small grains, but they had not the appearance of ordinary pollen-grains, being rather like little round ovules; they are not so numerous either as the pollen-grains in the anther-lobes of perfect flowers, for the lobes are smaller, and the grains less crowded.

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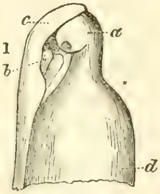
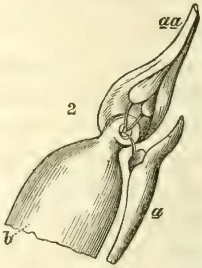
[*] Translated from an article in the 'Botanische Zeitung,' for October 23, 1857.

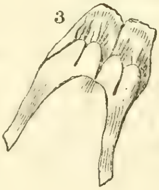
In the fertilized flowers the anthers had opened from the top, and from the two pores in each anther fine threads passed into the cavity in the stigma peculiar to this family, and thence into the fruit. When I tore the anthers from the stigma, short ends of thread remained attached to both. Dissection of the pollen-sac (anther-lobe) showed that the threads proceeded from pollen-grains (*pollen-ovules* I should rather say), closely attached to its inner surface.

I must further add that fertilization takes place in the very small, unopened bud; that it proceeds quickly, and that shortly after the capsule increases rapidly in size, and protrudes from the (till then) tightly closed calyx.

The accompanying figures will better exemplify this structure.







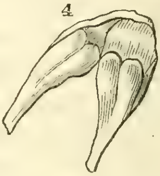


Fig. 1. A capsule, with an anther. *a* shows the bent pistil; *b*, the two anther-lobes; *c*, the leaf-like prolongation of the filament; *d*, the capsule.

Fig. 2. The capsule, with the two stamens, the latter separated at the base. The anther, *a a*, is reversed; the other hangs at the side.

Fig. 3 shows the two anthers torn from the stigma after fertilization.

Fig. 4, the same before it has taken place.

These figures may serve for *V. elatior* and *lancifolia*, and probably for many other species.

THIRSK NATURAL HISTORY SOCIETY.

Botanical Exchange Club.

The monthly meeting of the Thirsk Natural History Society was held on the evening of Wednesday, the 6th of October. Mr. J. G. Baker communicated the following notes upon the summer botany of Swaledale:—

"About the middle of the seventh month (July) of the present year, in company with our valued friend Jas. Backhouse, sen., I made a short excursion to the upper part of Swaledale, and of what was noticed in the botanical way during this trip I propose tonight to give you an outline. The lower part of the Dale was, many years ago, carefully and systematically explored by Mr. Ward, of Richmond, and the detailed results of his labours have been given in various publications, but the large tract of country that lies between Reeth and the borders of Westmoreland has never been searched and reported upon so far as its botany is concerned.

"As compared with either Teesdale or Yoredale, the upper part of Swaledale is remarkably shut in and isolated. A singular crescent of six undulated summits, each exceeding 2000 feet in elevation, which bear respectively the names of Nine Standards, Fell End, High Seat, Hugh Seat, Ladies' Pillar, and Shunnar Fell, encircles its head-waters, and the passes which lead out of its western extremity into Mallerstang and Wensleydale (the dales of the Eden and the Yore) are both above 1700 feet in height. The stream is made up of a large number of feeders which rise within the space which these peaks enclose, and in eight miles it declines in level more than as many hundred feet. Six miles from its source at Hollow Mill Cross is the village of Keld, and below this it turns south for a couple of miles, and the dale divides into two branches to encircle the curious conical mount of Keasdon, 1643 feet in altitude. These branches unite again at the little town of Muker, and the stream resumes its original eastward flow, which direction it maintains with little deviation till Swaledale is lost in the great central vale of York.

"Between Muker and Reeth the distance is nine miles, and in this space the river sinks in level from 850 to 600 feet. At Reeth, the Swale is joined by the Arkle, a stream which comes from the north-west, and rises not far from the head of the Greta. The lowest scar limestone just shows itself in the riverbed at Muker, but the sides of the valley are mostly made up of the Yoredale series of strata. These consist here, as in Wensleydale, of five separate bands of limestone, with wide intervening spaces, filled up with gritstones and shales. At the upper part of the dale the rocks of this series attain a thickness of 660 feet. In Keasdon and the fells on each side of the dale opposite to it, the top of the upper band of the limestone is 1600 feet high, and in the eighteen miles eastward to Richmond it sinks to 300 feet, and above comes on the millstone grit.

"In mentioning the species which fell under our attention, I will give, where it seems important, as accurate an estimate of their altitude as I can, in leaps of fifty yards, counting as nothing aught short of fifty. We arrived at Reeth from Richmond about noon on the 15th instant, and took the road that leads up the north side of the dale. Near Reeth occur *Rubus villicaulis, carpinifolius,* and *rudis,* and plenty of *Rumex aquaticus,* which latter continues up the dale to some distance west of Keld (400 yards). Here Calvey on the north side of the river attains 1600, and on the south Satron Hangers 1760 feet. On the banks of the beck at Healaugh (200 yards), grow *Equisetum hyemale, Arenaria verna, Festuca rubra, Solidago Virgaurea,* and the radiate form of *Centaurea nigra.* By the Swale-side, a little higher up, are *Ribes petræum, Myrrhis odorata, Cochlearia officinalis, Salix Smithiana, S. phylicifolia,* and *Hypnum rivulare,* and in the hedge-bank, *Hieracium tridentatum.* At Feethams the middle limestone forms a kind of scar on the hillside above the village. On the walls are *Hypnum murale* and *glareosum,* and in the bed of a little streamlet that trickles down the bank, *Hypnum crassinervium* and *Cinclidotus fontinaloides.* Between Low Row and Gunnerside the bank of the hillside is covered by a natural wood, made up mostly of Hazel, but containing also Birch, Ash, Oak, Rowan, Holly, Bird-Cherry, Rose, Bramble, and Willow bushes. Here and there are scattered trees of Sycamore, and I have often suspected that the species is an aboriginal inhabitant of some of our dale woods. But though undoubtedly self-propagated by seed in many such places, it is planted so commonly about villages and farmhouses that at present I would not by any means undertake to assert that it is not within the limits of possibility that the seeds may have found their way originally from the planted trees to the woods. On the dry, calcareous banks in these woods grow *Hieracium cæsium* and *murorum, Anthyllis Vulneraria, Scabiosa Columbaria, Gnaphalium dioicum, Poterium Sanguisorba, Helianthemum vulgare*; on tumbled rocks, *Grimmia trichophylla*; and in damp places near the roadside, *Lotus major* and *Glyceria plicata* (300 yards).

"The culminating summits of the line of watershed between the Swale and the Arkle, Rogan's Seat and Water Crag, attain respectively 2207 and 2184 feet. To these, from the village of Gunnerside, runs up a steep gill about six miles in length, in which are some of the most productive leadmines of the Auld Gang Vein. They have been worked from a remote antiquity, possibly from the period of Roman domination, when Cartismandua swayed the sceptre of Isurium, and Severus, over-wearied, lay down to die at Eboracum. We walked up the course of this gill for some distance, but had not time to follow it out to its extremity. Immediately above the village (300 yards) we came upon *Saxifraga hypnoides*, and whilst still about the same level, *Equisetum Telmateia*, *Polypodium Phegopteris*, *Habenaria chlorantha*, and *Seligeria recurvata*. The main limestone declines somewhat from Calvey to Water Crag, and here does not much exceed 500 yards. It shows itself along the edge of the moor in a line of scars. Climbing up to these we found, on the edge of a stream that flows from the foot of the cliff, *Carex fulva*, *Bartramia calcarea*, and *Hypnum commutatum*, var. *condensatum*. Upon the scars grow *Galium sylvestre*, *Sesleria cœrulea*, *Juniperus communis*, *Primula vulgaris*, *Arabis hirsuta*, and in a place where a rivulet trickles down a break in them, we noticed *Epilobium alsinifolium*, with *Chrysosplenium oppositifolium*, *Poa trivialis*, and *Agrostis alba*. Upon the top of the main limestone, by the side of a little pond, are *Callitriche verna*, *Montia fontana*, and *Ranunculus repens*; on the gritstone edge above (550 yards), *Salix caprea* and *Pogonatum alpinum*; and on the very summit of the moor, *Rubus Chamæmorus*.

"From the leadmines, everywhere about which is a remarkable profusion of *Arenaria verna*, but no *Thlaspi alpestre* that we could see, as at Hurst, Woodhall, and Malham, we struck over a spur of Rogan's Seat in the direction of the main dale, and reached just at the corner of the angle before spoken of, in which Cragpot Hall is situated. On the edge of the fell over Swaledale proper is *Sphagnum molluscum*, and on its slope *Carex curta*, *C. ampullacea*, and *Rumex sanguineus*, the latter at an elevation of upwards of 300 yards. In the woods by the roadside, at about the same level, are *Circæa lutetiana*, *Origanum* *vulgare,* and *Hieracium crocatum,* and in the fields abundance of *Geranium sylvaticum,* and *Carduus heterophyllus*. This is perhaps the most picturesque portion of the upper part of the stream. On the left towers the huge bulk of Keasdon, girdled to the summit with broken terraces of crag. In front, up the vista of a narrow sylvan valley, the distant outline of some of the crescent peaks may be faintly discerned. The lower bands of limestone edge the stream with long bands of scar, and at the bottom it falls over a calcareous cliff from twenty to thirty feet in depth, forming the waterfall that bears the name of Keasdon Force. By the riverside here grow *Trollius europæus* and *Rubus saxatilis,* and in some of the crevices of the rocks near the fall, *Asplenium viride, Distichium capillaceum, Mnium serratum, Gymnostomum rupestre, Neckera crispa,* and *Bartramia Œderi.* The little village of Keld stands considerably above the level of the river, on the north-western slope of Keasdon, and here we took up our quarters for the night. Professor Phillips laments the want of proper accommodation in this neighbourhood, but I fancy that the reason of this is that he has not hit upon the right place, and has stayed down at Muker instead of coming up to Keld. Upon this head I will only say that we can bear testimony that there is no need for any one to be deterred from visiting Upper Swaledale by the fear that it is a country where comfortable entertainment is not within reach.

"Two valleys, called respectively East and West Stonesdale, run up due north opposite Keasdon, with only a narrow ridge between them, and the main stream of the Swale is formed by the junction of three principal forks from the west, near the point of union of which another dale runs up to the north-west, which is formed of two branches that take their rise upon the south-eastern slope of Nine Standards. Acting upon the recommendation of the estimable Independent minister of Keld, it was this latter valley, which bears the name of Whitstondale, that we determined to follow up. The morning of the 16th opened with heavy rain, and the weather continued more or less unfavourable during the whole course of the day, but not so much so as to inconvenience us seriously. By the roadside near Keld (350 yards) grow *Galium Mollugo,* in damp places *Epilobium obscurum* and *Dicranum squarrosum,* and in cultivated ground *Senecio vulgaris* and *Capsella.* Upon the rocks by the Swale-side, higher up, may be met with *Epilobium angustifolium, Viola lutea, Hieracium Lawsoni* (*cerinthoides* of Backhouse's monograph), *Salix phylicifolia, Bartramia pomiformis* and *B. fontana, Bryum pallescens, inclinatum,* and *crudum, Hypnum plumosum* and *H. rivulare.* A barn-like erection near the junction of Whitstondale beck with the main stream, is half surrounded by a rank growth of *Senecio saracenicus,* but here the propinquity of the plant to the building marks upon its origin an indubitably alien stamp. The three miles that intervene between the foot of the stream and its fork lead up a romantic glen, well wooded, and edged with cliffs of great variety of composition, down which in several places tumble streamlets which will form fine cascades in a rainy season. Amongst the rocks in the lower part of this glen (350 yards) grow *Hieracium gothicum, Melica nutans, Rubus saxatilis, Poa Balfourii, Fissidens osmundoides, Gymnostomum rupestre, Blindia acuta, Hypnum pulchellum;* by the streamside, *Mnium roseum* and *Dicranum rufescens;* and on trees, *Orthotrichum pulchellum* and *Drummondii;* higher up (400 yards), *Habenaria chlorantha, Polypodium Dryopteris, Trollius europæus, Myrrhis odorata, Viola lutea, Hieracium cæsium, murorum, tridentatum, Lawsoni, crocatum,* and *corymbosum* (*rigidum,* Backh.), *Avena flavescens, Lastrea Borreri,* and great profusion of *Epilobium angustifolium.* In waste ground at the fork of the stream, near a few farmhouses that bear the name of Raven's Seat, we noticed *Peucedanum Ostruthium* and *Rumex obtusifolius.* From Raven's Seat we crossed up to the top of the moor in the direction of Nine Standards. The *Pteris* here attains an elevation of 600 yards, which is as high as I have seen it anywhere in this part of the country. On a gritstone edge, at about the same level, we saw *Allosorus crispus, Lastrea dilatata, Polypodium vulgare, Blechnum boreale, Lycopodium Selago,* and *Vaccinium Vitis-idæa.* The upper levels of the moorland consist everywhere of damp, barren, peaty tracts, and the vegetation is exceedingly unvaried and monotonous. The following are all the phanerogamic species noted between this gritstone edge and the summit of Nine Standards (2153 feet):—

Drosera rotundifolia.
Cerastium triviale.
Rubus Chamæmorus.
Galium saxatile.
Erica Tetralix.
Calluna vulgaris.
Vaccinium Myrtillus.
Juncus effusus.
Juncus squarrosus.

Empetrum nigrum.
Scirpus cæspitosus.
Eriophorum vaginatum.
Erioph. angustifolium.
Agrostis vulgaris.
Aira flexuosa.
Festuca ovina.
Nardus stricta.

"The boundary line between Yorkshire and Westmoreland runs along the western edge of this hill, and on that side it falls abruptly into the vale of the Eden, but the atmosphere was too misty today to allow us to see more than a vague outline of the hills of the Lake country, or to catch even a casual glimpse of Micklefell and the peaks over Stainmoor. Proceeding along the line of watershed between Whitstondale and Mallerstang, we saw, at nearly the same level as the gritstone edge before mentioned, *Myosotis repens, Carduus palustris,* and *Vaccinium Oxycoccos.* The head of the fell that overhangs the main valley of the Swale is at least 2000 feet high, and here we noticed, in the vicinity of a shepherd's hut, *Stellaria media, Plantago lanceolata, Montia fontana;* on its walls, *Leskea sericea* and *Grimmia pulvinata;* and by the side of a little tarn hard by, *Ranunculus hederaceus, Callitriche verna, Juncus supinus, Equisetum palustre,* and *Hypnum palustre.* From Hollow Mill Cross we descended by the road to Keld again, and next morning returned to Reeth by way of Muker and Gunnerside. Between Keld and Muker we gathered *Pterogonium gracile,* a species new to Yorkshire upon walls by the roadside. About Muker, *Carduus heterophyllus* is unusually plentiful in the fields. In a small piece of hedgerow below the town grow *Orthotrichum pulchellum, stramineum,* and *tenellum;* on walls, *Antitrichia curtipendula,* and at an elevation of 300 yards, at Gunnerside, *Rosa rubiginosa.*"

Mr. J. H. Davies exhibited specimens from Mr. Nowell, of the following rare Mosses from new stations, viz. *Dicranum spurium,* East Yorkshire, Skipwith Common, near Selby; *Leskea Sprucei,* West Yorkshire, Thornton Force, in Craven.

Reviews.

The Natural History Review and Quarterly Journal of Science. April and July, 1858; two Parts. London: Williams and Norgate, Henrietta Street, Covent Garden.

The April number of this Review contains an article on the Arctic Voyages, viz. M'Clure's Discovery of the North-west

Passage; A Personal Narrative of the Discovery, etc., by A. Armstrong, M.D., Surgeon and Naturalist; and third, An Arctic Voyage in Search of Friends with Sir John Franklin, by R. A. Goodsir.

In these inhospitable regions, Banks's Land, there are hills formed of accumulations of what the reviewer deems drift-wood, but which the naturalist of the Expedition thinks may have grown there. The climate was very much warmer, or rather much less cold, when these trees were produced in that high latitude.

> "On ascending (he writes) one of these hills, about a quarter of a mile from the beach, on its side, about three hundred feet high from the sea-level, we discovered the wood of which we were in search. The ends of trunks and branches of trees were seen protruding through the rich, loamy soil in which they were imbedded. On excavating to some extent, we found the entire hills a ligneous formation, being composed of the trunks and branches of trees, some of them dark and softened, in a state of semi-carbonization; others were quite fresh, the woody structure perfect, but hard and dense. In a few situations the wood, from its flatness and the pressure to which it had for ages been exposed, presented a laminated structure, with traces of coal. The trunk of one tree, the end of which protruded, was twenty-six inches in diameter by sixteen inches; that of another, a portion of which was brought on board, was seven feet in length and three feet in circumference, and dense in structure, although pronounced then to be Pine."

Among the reviews we notice a favourable one of 'First Lessons in Botany and Vegetable Physiology,' by Asa Gray (Fisher), a work profusely illustrated by original cuts. The work is cheap, but this is not its only good quality. The reviewer dissents from a statement of Dr. Gray's, about the introduction of questions at the beginning or the end of the lessons or chapters. We will take the liberty of objecting to the omission of certain Orders, *Gramineæ* and *Cyperaceæ* for example, both of which Orders are easily distinguished from other families and from each other. It is bad policy to tell idle students that certain Orders may be skipped because they are difficult; they too soon make that discovery. Indolence needs not to be backed by the *dictum* of a learned professor. Better tell them how they may surmount the difficulty, and this will beget confidence in the author or teacher, and self-reliance in themselves.

The strictures on Mr. Gosse's 'Omphalos' are by the reviewers reserved for a future occasion.

"The following species of Mosses, not hitherto recorded as Irish, have been discovered, etc. (see vol. i. p. 857):—

Sphagnum contortum. Wicklow Mountains. Mr. Davis.

Grimmia Schultzii. Near the Scalp, Dublin County. Mr. D. Orr.

Orthotrichum Lyellii. Mr. D. Moore. At Clonmel and Powerscourt, on trees.

Bryum Warneum. Mr. D. Orr. North Bull, near Dublin.

Bryum inclinatum. Mr. D. Orr. Botanic Garden, Dublin.

Bryum cernuum. Mr. D. Orr. Wall round the Viceregal domain.

Hypnum salebrosum. Mr. D. Orr. Near Botanic Garden, Glasnevin.

Sphagnum rubellum. Killarney.

Orthotrichum phyllanthum. Plentiful, but barren.

Orthotrichum tenellum. Mr. D. Orr. On Birch-trees, Balliniscorney Glen, County Dublin.

Bryum torquescens. Mr. D. Orr. Abbotstown, County Dublin.

Hypnum glareosum. Common near Dublin."

Mr. John Bain, Curator, College Botanic Gardens, exhibited a very beautiful variety of an *Athyrium* —— (?), discovered by a lady in the county of Wicklow.

July, 1858.

Several pages, filled with an answer to Mr. J. B. Jukes's letter, noticed in the preceding review, by the author of 'Omphalos,' may be read by those who can find satisfaction in such attempts to reconcile the facts of science with revealed truths. We do not venture to tread on such dangerous ground, and leave the matter to those who are, by their knowledge of science and revelation, better able to deal with it.

At page 175 of this number of the Review there is an elaborate article by Professor Kinahan, M.D., on the Distribution of Ferns in Ireland, and list of some of the localities wherein they occur.

In reference to *Asplenium acutum*,—confounded, the author affirms, with *A. Adiantum-nigrum*,—there is the following statement:—

". . . A form of *Asplenium Adiantum-nigrum* exists in several places, amongst others at Mucross, Killarney, which is extremely difficult to distinguish from the *printed descriptions* of this (the genuine) plant, but scarcely to be confounded with the plant itself. I have no doubt the specimens examined by Professor G. J. Allman, and among which he found intermediate forms, fall under this category. The true plant was found by me abundantly in 1856, growing in clefts in the rock, and in dry stations generally; the plants generally single."

In the list of the characteristic Ferns of the several districts there are several names which, to the readers of English Floras, need synonyms. We suppose *Loph. multiflora* to be an abbreviation and misprint for *Lophodium multiflorum*, and *Loph. fœnesecii* is probably to be read *L. fœnisecii.*

British Wild Flowers. Illustrated by JOHN E. SOWERBY, *illustrator of the 'Ferns of Great Britain,' the 'Grasses of Great Britain,' etc. Described, with an Introduction, and a Key to the Natural Orders, by* C. PIERPOINT JOHNSON. J. E. Sowerby, 3, Mead Place, Lambeth, S.

The purport of this new work on the British plants will be clearly understood from the following prospectus, which is here given *in extenso*:—

"An illustrated manual of British Botany has long been a desideratum, while the few works hitherto published, containing coloured figures of all the English wild flowers, are far too voluminous for use in the fields and woods, and too costly to be within the reach of many; the excellent books of Hooker, Lindley, and Babington, however well adapted for the professed student of botany, are too technical and elaborate for the purpose of the beginner.

"The present work will contain carefully drawn figures of every British flowering plant, taken upon a reduced scale from Sowerby's 'English Botany,' including those published in the three volumes of Supplement to that work. A short introduction to the natural orders and genera will be added, with a glossary of botanical terms.

"The book will comprise eighty plates, each containing twenty figures, forming, with the letter-press, a complete illustrated manual of the British Flora.

"The Introduction, Key, and Glossary will appear in portions, at intervals of two or three months."

In the first part of this work now issued, there are five Orders, or, in stricter terms, all the British species in the Orders *Ranunculaceæ, Berberidaceæ, Nymphæaceæ, Papaveraceæ, Fumariaceæ,* and a part of those in *Cruciferæ*, are described, both verbally and pictorially.

The Order is first given, then the genus, then the species, with its English name, and the number of the figure in the present work. Then there is a brief description of the plant, of its habitat, size, duration, flowering period, with references to 'English Botany,' both editions, to Hooker and Arnott's 'British Flora,' Babington's 'Manual,' and Lindley's 'Synopsis.'

The following is a verbatim example of the arrangement and substance of the work. This will give a clearer idea of the manner in which the subject is handled than any description can:—

"ORDER VI. CRUCIFERÆ.

Genus 2. CRAMBE.

C. maritima. Sea Kale. Fig. 62.—Leaves roundish, glaucous, waved, toothed, very smooth. Sandy coasts. Young shoots edible, 2 ft., peren. June. White (½). E. B. 1, 924. E. B. 2, 892. H. & Arn. 43. Bab. 34. Lind. 34."

There are ten of these descriptions on each page, and the whole number of species will occupy, at the same space for each, 160 pages; the descriptions of the orders, genera, key, glossary, index, etc., will probably fill up about as many more, or 320 pages in all for the letter-press; the 80 plates will make 160 pages, and the whole work may be estimated at under or about 500 octavo pages.

Each plate contains representations of twenty species; these are arranged in lineal sequence in five rows, each row having four figures. Thus there is a leaf or two pages of letter-press and a plate, or a leaf of printed matter and a plate of figures alternately. A more convenient arrangement could not be adopted.

The figures are, as the proprietor informs the public in his prospectus, reductions of those in 'English Botany,' hence they will have all the excellences of that well-known work.

It is to be hoped that the author will not repeat the defects as well as the excellences of 'English Botany,' or perpetuate its blunders; for example, that two figures will not be given of *Crepis taraxacifolia*, while *C. biennis* is not noticed, except by name (see 'Phytologist,' vol. ii. No. 34, p. 356, Feb. 1858).

The reviewer's duty is most satisfactorily accomplished by giving a specimen of the work submitted to him for his opinion; but in some cases this may not be quite sufficient. He may generally be expected to give an opinion of the manner in which the author or publisher has carried out *his* view of the matter, or, in other terms, if he has adequately performed what may be legitimately expected from the title of the book, or from the objects of its publication.

About the present work, this new illustrated British Flora, there can hardly be a difference of opinion, either among students or critics.

No botanist and no artist of the present day has both the means and the ability to issue such a work at so moderate a price as the proprietor of this publication. That the work will enlarge the circle of *soi-disant* British botanists is reasonably to be expected. How far it is calculated to aid the onward progress of science might be seen by those who are not far-sighted.

Thalictrum minus and *T. majus* appear in the drawings given in this work (figs. 3 and 4) to be distinct enough, and their verbal definitions, as they appear on page 1, are sufficiently clear. But whether these forms as described in the figures, and their descriptive characters, be constant enough to help the unskilled to identify or discriminate them, we will leave the quoted authorities who indorse them to determine. Mr. Babington may complain that he is quoted in support of species which he has abandoned for nearly half a score of years, though the readers of Mr. Sowerby's 'Illustrated British Flora' may not be cognizant of this fact, but it is the duty of an honest critic to tell them.

In *Ranunculus* we have *R. pantothrix,* but miss *R. fluitans, R. cœnosus,* Guss., etc. We do not *miss* the Species Babingtonianæ in this genus, because we have not had them long.

We have *Papaver nudicaule,* which might have been spared, because it is not generally acknowledged to be a British wild flower. There are but three *Fumarias,* while most recent writers on British plants give us five or six.

Mr. Sowerby does not deceive the purchasers of his work; he only professes to give them a reduced edition of 'English Botany.' As has been said, the work cannot fail to be useful, as it will render the subject more attractive and accessible to those who only wish to get a superficial view of the subject. Those who wish to advance, desire works which will at least put them in possession of all that is known about the science at the time of their publication. That Mr. Sowerby's subsequent numbers may do this is not improbable, but if they do not, his subscribers and the buyers of his work will have no right to complain, because he does not profess to publish anything not contained in a work published half a century ago.

How long is it since any of the supplements appeared?

It would be a libel on the present generation of British botanists to say that they have been doing nothing for science during these long periods. They have been extending the knowledge of their native Flora, but the new illustrated 'British Wild Flowers' is not much the richer for their labours.

The Friend, a Monthly Journal.

This monthly periodical, which we believe to be the exponent or the organ of a portion at least of the highly respectable body who call themselves Friends, is sent to us by an obliging correspondent. In the number for May there is an article on geographic botany, from which the following extract is taken:—

> "The curious wanderer on the wild cliffs of Orme's Head, or along the romantic coast of South Devon, has probably often been struck and amused with the little cabbages growing out of the fissures and on the ledges of the rocks; not with the hard heads, which are the effect of cultivation, but looking like young cabbages a few weeks after they have left the seed-bed, with occasionally an ancient-looking straggler. These little plants, which, to the unaccustomed eye, look so unnatural and out of place in such wild situations, are *Brassica oleracea*, the origin of our cabbages and cauliflowers, though it would be dangerous (hazardous) to assert that all the varieties in cultivation are derived exclusively from this species."

The same writer, who evidently acts under the influence of the caution which is said to characterize the religious body of which this paper is the supposed organ, in treating of another maritime species, says,—

> "Sea Kale (*Crambe maritima*) belongs to the same Natural Order as the cabbage and turnip. . . . Sea Kale is occasionally met with on our coasts, frequently just above high-water mark; and when not distorted and blanched, as we see it in our gardens, is quite a handsome and striking plant, with its large succulent leaves and white flowers. It is a comparatively recent addition to our vegetable garden, and has only become at all generally distributed within the present generation, though in its wild state it has been used from time immemorial by the inhabitants of the places where it grows."

Again,—

"It is exceedingly difficult to distinguish the species, or whether it may not be from more than one, that we derive the numerous cultivated varieties of Beet and Mangold-wurzel. *Beta vulgaris* and our own closely-allied British species, *Beta maritima*, are both littoral plants."

These remarks have some relation to a subject not long ago broached in the 'Phytologist.'

BOTANICAL NOTES, NOTICES, AND QUERIES.

Aremonia agrimonioides and Potentilla hirta.

We are very sorry that our indefatigable and warm-hearted correspondent and contributor had some slight excuse for taking offence at an expression in our Thirsk Report, published on the 1st inst., p. 593, in which the writer states that he had "expressed a disbelief in the occurrence of this plant of the south of Europe, in a spontaneous state, in Perthshire:" he does not say that he disbelieves it *now*. We do not know what statement Mr. Sim sent to the Thirsk Natural History Society along with his specimens, nor do we know whether the disbelief was caused by the private history of the plants or by the publicly-known facts that they are both south of Europe species. Our business is solely to soothe the irritation of our friend. Botanists will get to themselves the unenviable character of being, like poets, *genus irritabile*, if they will be hasty to take the alarm that their veracity is impeached. Nothing, we venture to say, is further from the truth than this: we mean in the present case. But let Mr. Sim give his history of the state of these plants in his own words. He lives, as it may be said, on the very spot. We and our Yorkshire friends are at a great distance, and not so good judges of what is and what is not of spontaneous growth as a keen, intelligent, local botanist.

About the *Aremonia*-station Mr. Sim writes: "It is certainly not far from Lord Mansfield's flower-garden, but I know of no nursery within two miles of it. As to the *Potentilla*, I stated to Mr. Baker, in reply to questions respecting it, that it grew in and around a quarry near to Mr. Turnbull's extensive nursery, where rubbish from the latter is deposited. It is quite possible, and even probable, it may have come from this source, yet who can be certain that it has? I find, on recent visits, that it is more abundant than I formerly affirmed, growing not only in crevices on the shelving rocks, and in the dry, uncultivated soil near the old quarry, but firmly established in ground recently cultivated. When was it introduced? None can tell. None of the managers of the nursery appear to know anything about it, nor ever to have seen it, though some of them have been there for a great number of years. It is not in this nursery *now*, which certainly contains a great many exotics, and *Potentillæ* not excepted. I certainly question greatly if it ever was in the said nursery. In the eye of the florist it can never be considered either pretty or ornamental. The blossom of the common *Potentilla anserina* rivals it in size and beauty. As to its being a native of central and southern Europe, is that any reason why it may not be found in Scotland? The common Nettle (*Urtica dioica*) has a wider range. It grows abundantly in Malta and the West Indies as well as in Great Britain. Plants are usually, I believe, more restricted in their climatal extent, yet the exceptions are too numerous and well attested to be called in question by any reasonable and unprejudiced mind. But on the subject of the geography of plants few botanists are agreed; it is one of those questions which, I am afraid, will never be satisfactorily solved by man.

"In regard to *Aremonia agrimonioides*, while I admit the possibility of its introduction by human agency, yet I unhesitatingly demur to its probability. If the other plant was not showy nor ornamental, this is less so; the flowers are small and inconspicuous, and of short duration, and nearly hidden by the profusion of leaves which arise from the base of the stem. In the eye of the practical gardener it cannot be an object of attraction. A culinary vegetable it is not, neither am I aware that, like its congener, *Agrimonia Eupatoria*, it is used in medicine, and besides, as far as I can learn, no botanical garden or nursery ever existed where it grows, and the immense trees under whose spreading branches it takes umbrage strongly militate against the supposition that either nursery, cottage-garden, or cottage, could have been where it is for (the apparent age of the trees considered) the last seventy or eighty years. If these remarks are not sufficient to establish the claim of both these plants, especially the latter, to at least naturalization, I can only say to those who doubt, Come and see." "Seeing is believing."

LILAC IN BLOOM.

" . . . On my return to Belgium a week ago (the 8th), I found the Lilacs beginning to bloom a second time this year. The opening of the flowers was checked by two or three nights of rather severe frost, but the weather is once more extremely mild for the season." L.

[Have any of our correspondents or readers observed a similar occurrence in this tree?—ED.]

Communications have been received from

John Barton; W. F.; Henry Grove; Arch. Jerdon; Harriet Beisly; Rev. W. H. Hind; E. J.; W. P.; J. G. Baker; E. Green; W. B., jun.; John Lloyd; J. H. Davies; Maxwell T. Masters; E. Hodgson; H. C.; T. W. B. Ingle; B. C.; F. Beresford Wright; F. Y. Brocas; A. F. Stansfield and Sons; E. G.; Dr. Benjamin Carrington; Miss J. Hutton; John Sim; Sidney Beisly; J. S. M.; C. Hobkirk; S. P.; Querist; S. R.

BOOKS RECEIVED FOR REVIEW.

Prescott's Tobacco and its Adulterations.
Transactions of the Malvern Naturalists' Field Club.
The Friend.
The Critic.
Sowerby's British Wild Flowers. Parts III. and IV.
Pliny's Natural History. Vol. VI.

ERRATA *in the October number*.—In the "Contents," and at p. 581, *for* T. BARTON *read* J. BARTON.

PLANTS OF THE CHANNEL ISLANDS.

Notice of South European Plants indigenous to the Channel Islands, most of which reach their northern limits in the south and west of Britain. By G. HENSLOW, Christ's College, Cambridge.

The study of the Flora of the Channel Islands is one of peculiar interest to the English botanist, inasmuch as they are not only particularly favoured in possessing many rare and choice plants, but as being, as it were, stepping-stones to the British Isles for the south European Flora.

Before the year 1837 very little attention had been paid to the Flora of these islands; and no catalogue of their plants, with any attempt at completeness, had been published previous to that time. The earliest account consists of a few scattered notices of plants discovered by Dr. Sherard, between the years 1680 and 1690, and given in Ray's 'Synopsis.' A few plants have from time to time been added to the list, when Mr. Babington published his 'Primitiæ Floræ Sarnicæ,' in 1839; but no new publication has appeared subsequently, although several additional indigenous plants have been discovered in the Islands.

In the following notice I have only selected such of the rare plants and others as are characteristic of the Sarnian Flora, and which appear to attain their northern or western limits in these islands, or in the southern counties of England and Ireland.

From the position of the islands (Mr. Babington remarks, in the preface to his work), their Flora much more resembles that of the coast of France than that of the southern and south-western counties of England; for in fact, while every plant will be found on the adjoining French coast, many appear to reach their extreme limits in the above counties, and some few do not even extend further than Jersey. On the other hand, there are some characteristic and common English plants which do not appear in these islands; the following is a short list of such:[*]—

Clematis Vitalba.
Thalictrum flavum.
Caltha palustris.
Anemone nemorosa.
Viola hirta.
Ononis antiquorum.
Galium cruciatum.
Hypericum hirsutum.
Achillea Ptarmica.
Campanulaceæ.[†]
Melampyrum (*no species*).
Pinguicula vulgaris.

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[*] Principally from the preface to Babington's 'Primitiæ Floræ Sarnicæ.'

[†] No species except *Wahlenbergia hederacea* and *Jasione montana*.

Orchis Morio.
Habenaria bifolia.
Habenaria chlorantha.
Allium ursinum.
Bromus asper.
Ophioglossum vulgatum.

The following are rare English plants, chiefly confined to the southern or south-western parts, but are frequent in these islands:—

Matthiola sinuata.
Helianthemum guttatum.
Erodium moschatum.
Lotus angustissimus.
(Var.?) Lotus hispidus.
Herniaria glabra.
Polycarpon tetraphyllum.
Bupleurum aristatum.
Cicendia filiformis.
Orobanche cœrulea.
Scrophularia Scorodonia.
Bartsia viscosa.
Trichonema columna.
Cyperus longus.
Knappia agrostidea.
Cynosurus echinatus.
Asplenium lanceolatum.

Ranunculus ophioglossifolius, Vill.—This plant is a native of southern Europe, extending northward through western France to St. Peter's Marsh, in Jersey. It appears to be closely allied to *R. Flammula,* but the stem is more erect and branched, and the carpels are minutely granulated, whereas in the latter they are minutely pitted or smooth, and have usually a hooked beak.

Fumaria capreolata.—This appears to be an extremely luxuriant variety of *F. officinalis,* which is rather rare on arable land in Jersey, the chief differences being in the sepals, which are larger in the former, and the nut nearly orbicular, while in *F. officinalis* it is compressed laterally. It is much more common in southern Europe than in England.

Matthiola sinuata, R. Br.—Very plentiful on the sands of St. Ouen's Bay, and also in other bays of Jersey; and Grand Cobo and Grand Havre, Guernsey. It is common all round the Mediterranean, and up the west coast of Europe to Ireland.

Erucastrum incanum, Koch, and *Sinapis cheiranthus,* Koch.—Both of these occur in arid places near the sea, throughout southern Europe, up the west coast to the Channel Islands.

Helianthemum guttatum, Mill.—Abundant in many places on the west side of Jersey, the Corbierre, St. Brelade, near Grosnez, and Petit Port. It also occurs in southern Ireland and in Anglesey, and is very common in southern Europe.

Silene conica, Linn.—St. Ouen's and Grouville Bays, Quenvais, and near St. Helier's.

Silene anglica, Linn.—Frequent in all the Channel Islands.

Silene quinquevulnera, Linn.—Probably a variety of the last; is found at Braye-du-Valle, near Vale Church, Guernsey.

Neither of these three appear, unless accidentally, much higher than the south of England.

Lavatera arborea, Linn.—Plentifully distributed over the Islands. It occurs chiefly on maritime rocks in south-western Europe, from the Gulf of Genoa, round Spain, to the British Isles, where it appears chiefly on the south and west coasts of England and Ireland, and on the Bass Rock in the Frith of Forth.

Hypericum Androsæmum, Linn.—In shrubby places, in western and southern Europe, and extending far into central Asia. In Britain it is nearly confined to the west and south coasts, rarely appearing on the eastern side.

Hypericum linariifolium, Vahl.—On dry, hilly wastes, in the west of Spain, Portugal, and France; abundant in the Channel Isles, and reaches the south-west of England at Cape Cornwall and Devonshire.

Geranium striatum.—Hitherto not included in the British Flora, but to all appearances it is truly wild in Jersey, occurring in many hedges. St. Martin's, Trinity, etc. It is peculiar to a southern clime, though said to have been discovered in Cumberland (*vide* Hooker and Arnott's 'British Flora,' *G. nodosum*).

Erodium moschatum, Sm.—In sandy waste places and heaths, especially near the sea, in western and southern Europe. Frequent in the Channel Islands. It appears occasionally on the south and west coast of England.

Erodium maritimum, Sm.—On maritime sands, in western Europe and on the Mediterranean; not uncommon on the south and west coasts of England, up to the south of Scotland.

Oxalis corniculata, Linn.—A common weed in all the hotter and most of the temperate regions of the globe. Very common, especially in gardens, in Jersey and Guernsey; in Britain only in a few localities in the south of England.

Medicago denticulata, Willd.—Var. *vulgaris,* Grève-d'Azette, Jersey. Var. *β. brevispina,* Alderney; by the gate of Vale churchyard, Guernsey.

Medicago maculata, Willd.—Common in Jersey.

Medicago minima, Lam.—St. Ouen's Bay and the Quenvais, Jersey.

These are all somewhat south European, extending into the southern parts of England, and occasionally into the midland and eastern counties.

Trifolium strictum, Linn.—Found scattered over central and southern Europe, and one single plant has been found in St. Ouen's Bay, Jersey; it also appears about the Lizard Point, Cornwall.

Lotus angustissimus, Linn.—Frequent in the lanes and by the sea, Jersey, also in the other islands of the Channel. In Britain only on the south coasts of Ireland and England, extending eastwards to Hastings.? Sheppey]

Arthrolobium ebracteatum, DC.—Occurs in sandy situations near the sea, in south-western Europe, up to the Channel Islands, and to the Scilly Isles, off the coast of Cornwall.

Mespilus germanica, Linn.—Abundant in many hedges, especially in St. Martin's, Jersey; Guernsey.

Œnothera biennis, Linn.—Appears to have established itself on the sand near Gorey; Jersey.

Lythrum hyssopifolium, Linn.—Grouville, Jersey.

Cotyledon umbilicus, Huds.—Abundant everywhere in the Islands.

Bupleurum aristatum, Reich.—The Quenvais, and near St. Ouen's Pond, Jersey. It likewise is found at Torquay, though it becomes more abundant in southern Europe to the Caucasus.

Centranthus ruber, DC.—Frequent on walls. St. Helier's, St. Martin's, etc., Jersey. St. Peter's Port, Guernsey.

Gnaphalium luteo-album, Linn.—Although dispersed nearly all over the temperate and warmer regions of the globe, and extending in Europe to the Baltic, yet in the British Isles it is hitherto confined to Jersey.

Centaurea Calcitrapa, Linn.—Central and especially southern Europe; occasionally found in southern counties of England.

Centaurea Isnardi, Linn.—Common on the Mediterranean, and extending up the west coast of Europe to the Channel Islands.

Centaurea paniculata (?).—This does not appear to have been recognized in the British Floras; but it is found in the west of Jersey, though sparingly.

Cicendia filiformis, Reich.—Common in western France and Spain, but in England confined to south-western counties. It occurs in the Quenvais and St. Brelade's, Jersey. Vale Common, Guernsey.

Echium violaceum, Linn.—Abundant near St. Brelade's, St. Aubin's Bay, etc., Jersey. Southern Europe.

Orobanche cœrulea, Vill. ?—Very common on hedge-banks and in meadows. Parasitical upon *Achillea Millefolium.* It has been found in Norfolk only in Britain.

Orobanche amethystea.—Probably a variety of *O. minor,* and parasitical on *Eryngium;* is abundant on the sands of St. Ouen's Bay, Jersey.

Linaria pelisseriana, Mill.—Western and southern Europe, along the Mediterranean; found in Jersey, near St. Peter's Barracks.

Sibthorpia europæa, Linn.—Common by the "Jersey Wells." It appears in southern Ireland and the south-west of England.

Bartsia viscosa, Linn.—Common in wet places, Jersey.

Armeria plantaginea, DC. ?—On sandy heaths and wastes, in western Europe; in our Flora only in the Channel Islands. The Quenvais and St. Brelade's, Jersey.

Mercurialis annua, Linn.—Very common in gardens and cultivated land, in the Channel Islands. Central and southern Europe; not generally common in England or Ireland.

Orchis laxiflora, Lam.—Common in southern Europe; in the British Isles confined to Jersey and Guernsey.

Spiranthes æstivalis, Koch.—Chiefly in southern Europe. In the British Isles only in the New Forest, and St. Ouen's Pond, Jersey.

Trichonema Bulbocodium, Reich.—All round the Mediterranean, up to the Channel Islands and Devonshire.

Scilla autumnalis, Linn.—St. Catherine's Bay, Grosnez, etc.; Jersey, Guernsey, Alderney, Sark. In Britain only in southern counties.

Allium sphærocephalum, Linn.—Sands of St. Aubin's Bay. In Britain only near Bristol.

Juncus capitatus, Wrig.—Western and southern Europe. In the British Isles only the Quenvais and St. Brelade's, Jersey. Port-de-Fer and Vale Common, Guernsey.

Scirpus pungens, Vahl.—Chiefly in North America and the West Indies, occasionally in western Europe, as at St. Ouen's Pond, Jersey.

Lagurus ovatus, Linn.—Common all round the Mediterranean, and appearing in Guernsey.

Polypogon monspeliensis, Desf. — Braye-du-Valle, Guernsey. In England only in the south-eastern counties.

Cynodon Dactylon, Pers.—Very common in southern Europe. In England only on the south-western coasts. Varon Bay, Guernsey.

Briza minor, Linn.—In many parts of Jersey and Guernsey. In England only in southern counties.

Bromus maximus, Desf.—A native of the Mediterranean, which appears to have established itself in Jersey and Guernsey.

Ophioglossum vulgatum, Linn., var. *lusitanicum*.—Along the Mediterranean, and up the west coast to Guernsey. *O. vulgatum* occurs in many parts of England.

Asplenium lanceolatum, Huds.—Western Europe, chiefly near the sea, extending southwards to Madeira. In Britain not uncommon in the south-western and Welsh counties, and occurs also near Cork, in Ireland, and near Tunbridge Wells, in Kent.

Gymnogramma leptophylla, Desv.—In the Mediterranean region and western Europe, extending to central India, and northward, up western France, to Jersey.

Adiantum Capillus-Veneris, Linn.—In Plemont Caves, Jersey. In England only in south-western counties; in South Wales and Ireland. Common in southern Europe.

BRYOLOGY OF SOUTHPORT.

Remarks on the Bryology of Southport, Lancashire. By
J. B. Wood, M.D.

To the Editor of the 'Phytologist.'

As everything which tends to increase our acquaintance with the botanical productions of the kingdom generally, must necessarily have more or less interest to your readers, I take the liberty of forwarding to you some observations on a most delightful ramble I have lately had, in perhaps one of the most interesting districts of this county.

My friends Messrs. Marrat and Palgrave, of Liverpool, with Mr. Nowell, of Todmorden, arranged to meet at Southport, for the purpose of investigating, at this season of the year [July?], the localities which were already known to produce some of the most rare and interesting British Mosses, most of which have been discovered by the unwearied assiduity and perseverance of Mr.

Marrat, who is a most acute observer, and whose quickness and powers of discrimination, in detecting generic and specific differences, are of the highest order. We commenced our excursion in the direction of the "North Shore," our first object being to search for *Bryum formosum*, the last new discovery of Mr. Marrat, and which, in the words of its discoverer, "is so unlike every other known British species." On arriving at the spot where it had been previously gathered, we instituted a most diligent and careful search, but notwithstanding our most unwearied efforts, we failed to detect any traces of its presence; it would seem as though the long drought of the summer had prevented its making its appearance. Our next object was *Bryum Marrattii*, and under the guidance of Mr. Marrat, who first detected it, we directed our steps to the locality where, in former years, it grew and flourished most abundantly; but again we were doomed to bitter disappointment, for it eluded our most diligent research, and not a vestige of the plant could we find. Indeed the locality where it once grew was so completely changed, that hardly was it possible for any Moss to grow; the whole surface of the ground was covered most densely with a sward of impenetrable vegetation, presenting no possible opportunity for plants of this order to exist. They had evidently been driven from their abode by the encroachments of other species of a higher grade, and so far as this habitat is concerned, *B. Marrattii* may be considered *to be now extinct*. We then rambled for some time in various directions, hoping to meet with it in other places, but in vain. Wearied and fatigued we were compelled to return without seeing or collecting anything of interest. On the following morning, after an early breakfast, we renewed our ramble, with the accompaniments of a brisk and exhilarating breeze, and the warm and genial rays of a brilliant sun, nothing daunted by our disappointment of the previous day. On this occasion we proceeded in a southerly direction for about a mile, towards the large and extensive flats and hollows which form beautiful valleys between the sandhills, and we soon fell in with an abundance of *Bryum calophyllum* and *B. warneum*, nestling in small patches, on bare places on the ground, amongst the dwarf *Salix fusca*. The two plants were frequently found growing together in the same patch, but are readily distinguished at sight by the peculiar forms of their capsules and opercula, as also by the very different character of their leaves. The former was in a beautiful state of perfection; the latter, except in some few instances, where it grew in more exposed situations, was not generally sufficiently ripe for good specimens. After having sated ourselves with an ample stock of these, we proceeded in our walk. We soon met with *Meesia uliginosa*, a most beautiful plant, which grows in great profusion, in large and conspicuous patches, visible at a considerable distance, and very tall and luxuriant, but at this season much too far advanced, the fruit withered and bleached by the scorching rays of the sun. In the middle of June it must be a most beautiful sight, at which time the capsules are quite mature. *Amblyodon dealbatus* was also met with in abundance; it was likewise long gone by; it is in perfection at the same time as the *Meesia*, as also *Hypnum polygamum*, which is very common. *Hypnum elodes* and *lycopodioides* are also abundant in the wet and swampy hollows; both barren. *Hypnum commutatum, β condensatum*, was also abundant in similar situations. Perhaps there are few Mosses which have given rise to so much confusion amongst bryologists as this. For many years it has grown in several localities in this neighbourhood, and has always, until very recently, been considered as the typical form of *Hypnum aduncum*, which however is a very different and totally distinct species; and in one locality near Manchester, Hale Moss, the two plants grow together, both fructifying freely; and when thus seen, and attentively studied, can scarcely again be confounded or misunderstood. The plant under consideration appears to possess many features which would seem to entitle it to rank as a distinct species, as already observed by Mr. Wilson, in his admirable 'Bryologia Britannica,' a monument of patient industry and laborious research, and the greatest boon to all lovers of these interesting objects. He has there fully and most accurately described the differences which characterize them, and I can only refer your readers to his descriptions, amply confirmed by my own observations and those of others, as being much more lucid and clear than any remarks of mine. The circumstance of its occurring so frequently in localities at so low a level, and especially so near the sea, would seem to strengthen its claims very forcibly to the right of being considered as distinct, and I think, on reconsideration, that the question will be ultimately decided in its favour. It has also been mistaken for *H. revolvens*, and frequently sent to me as such, but that also has features peculiar to itself, which at once separate it from the plant under consideration. The dark *brilliant purple,* almost *black,* colour of the foliage of the former serves to distinguish it at sight, as also by other differences, to which it is here needless to allude. *Catascopium nigritum,* a species hitherto considered so rare and local, occurs here in great abundance, in all the damp hollows on both sides of the town; it grows in extensive patches for many yards together, forming large convex cushions, the vivid green of the foliage contrasting most admirably with the bright-red setæ and brilliant-black capsules, which rose up in thousands, and presented, under the bright rays of a noonday sun, a most gorgeous and lovely appearance, that filled our minds with ecstasy and delight; it was indeed a treat to all of us, and the remembrance of which will not be readily effaced. Mr. Marrat finds it also in plenty on the Cheshire side of the Mersey, near New Brighton, in similar situations. *B. cernuum* covers the ground for many square yards together; it was now out of season; the earth was literally red with its innumerable capsules, and in May must present a most interesting sight. *B. pseudo-triquetrum* is found plentifully in various places, but the fruit was over-ripe. *H. cupressiforme,* var. (*H. nigro-viride,* Dickson), is also very common, its dark lurid-green patches being very conspicuous. *H. lutescens* and *albicans* are also of frequent occurrence, but of course at this season not in fruit. *Tortula convoluta, Didymodon rubellus,* and *Trichostomum flexicaule,* the latter in a very dwarf state, are likewise very common. *B. uliginosum* is found only by the sides of a ditch near to Birkdale church; it was sparing in quantity, and, from the unusual dryness of the summer, was not so tall and luxuriant as we meet with it in this neighbourhood, though the capsules were in perfection, and beautifully expressive of the peculiar character which marks the species. In searching for this plant, my friend Mr. Nowell pulled up with it a species of *Hypnum,* which, to our inexpressible delight, proved to be the rare *H. salebrosum* of *Hoffmann,* and which, as observed by Mr. Wilson, is a strictly monoicous species, the *barren and fertile flowers* being very conspicuous on the *same shoots;* this circumstance, combined with the difference in the form of its leaves, which are shorter, less tapering, and more obviously serrate, serves to distinguish it readily from its near ally *H. glareosum,* Bruch, a truly dioicous species. This was the crowning success of our already rich harvest, and the delight felt by all was more than words can easily portray. It proved however to be very sparing. The fructification was in a beautiful state, though some of the capsules were not quite ripe. However, we learned that about four miles from Southport, near the Ainsdale station, between Liverpool and the former place, similar ditches were said to exist, and where *B. uliginosum* used to grow abundantly, and it occurred to us that possibly also might be found there in company with it, this very rare and interesting plant; it was however too late to go there on that day, and I was obliged to return, on account of my professional avocations, and my Liverpool friends were likewise compelled by their engagements to do the same. I prevailed on Mr. Nowell to remain until the following morning, to make a special visit to the locality indicated, in search of this valuable and much-desired species; and I am happy to say that, with his usual good fortune, he met with it in abundance, and covered with a profusion of capsules in the best possible condition; it was confined however to a small space of some few yards in extent, growing in the sides of a deep dry ditch, and is a most interesting addition to the Flora of that neighbourhood, as also furnishing another habitat to the few already known to exist. *Bryum uliginosum,* in this situation, was scarcely to be seen, although in former years it was most abundant. Thus ended one of the most delightful excursions; and few indeed are the places in which so many rare and beautiful species are to be met with in a space so limited.

I shall be most happy to supply, as far as I can, any of your readers or friends with examples of the plants collected, as my greatest pleasure is to share, with those of kindred feelings and pursuits, anything that is interesting to me that may happen to fall in my way; the pleasure of collecting is, in my opinion, far surpassed by the gratification of sharing with others your acquisitions. I forgot to mention *H. Kneiffii,* which is found sparingly, but not now in fructification. Of this Moss I know but little, but should think that it is very likely constantly overlooked and passed by as a state of *H. fluitans.*

Since writing the above, Mr. Marrat tells me in his letter that he believes he gathered last year, at Southport, what he considers *H. campestre,* Bruch, a species very closely allied to *H. salebrosum,* Hoffmann, the characters of which, as given in 'Bryologia Britannica,' appear rather too vague and indefinite to enable one, not actually acquainted with it, to accurately determine its identity; its decision is therefore at present left in abeyance. This notice, however, of its supposed occurrence in this locality, may serve to stimulate others to make further search, in the hopes of its being again detected. Mr. Mitten, whose vigilance and accuracy permit little to escape his notice, has, I believe, already found it in Sussex.

I have just received from my friend Mr. Palgrave a package of Mosses, amongst which I find one named "*Hypnum exannulatum,*" gathered in May, 1823, in woods at Roslyn, and which certainly, as I believe, is identical with *H. commutatum,* var. *β condensatum,* the plant already discussed. Mr. P. also remarks in his letter, "This is what used to be called *H. aduncum,* but Mr. Wilson says the true *H. aduncum* is not *indigenous!*"

It is to be hoped however that these observations, with my own crude remarks, may induce Mr. W. to favour your readers with some further details in elucidation of these very difficult and anomalous species.

Broughton, Manchester, Sept. 20.

PLANTS COLLECTED NEAR HUDDERSFIELD.

Notice of some Plants collected in the vicinity of Huddersfield.

By C. Hobkirk.

I have marked with an asterisk those plants of which I have a few duplicates, and shall be glad to exchange with such of your correspondents as may desire specimens.

Order Gramineæ.—On a heap of rubbish, about a mile out of town, I have found many plants (some of which I am unable to make out), and amongst them the rare Grasses *Digitaria sanguinalis, Setaria viridis, S. verticillata.* I was along with Mr. Hobkirk when we discovered *Chloris compressa* and **Phalaris paradoxa.*

Araceæ.—*Acorus Calamus* still grows at Milnesbridge, as stated in Baines's 'Flora,' and likewise near Kirkheaton.

LILIACEÆ.—A friend has shown me specimens of *Ornithogalum umbellatum,* gathered about six miles off.

HYDROCHARIDACEÆ.—**Sagittaria sagittifolia* is a magnificent object in the pond at Milnesbridge, recorded by Baines. It is literally studded with it, and when in flower has a very fine appearance.

AMARYLLIDACEÆ.—About four miles from here, in the direction of Woodsome, *Galanthus nivalis* is found in considerable plenty, along with **Narcissus Pseudo-Narcissus.*

IRIDACEÆ.—Last Saturday afternoon we came upon a real prize, in the shape of *Crocus nudiflorus.* I only met with one flower, but I hear that other botanists have supplied themselves from the same place, but have left the roots, so that we may hope for the reappearance of the plant. I cannot think it introduced where I found it.

AMARANTHACEÆ.—I suspect one of the plants found on the rubbish-heap to be *Amaranthus retroflexus,* but am uncertain, and shall be glad of your opinion on the matter.

LABIATÆ.—*Leonurus Cardiaca* has been gathered near here by Mr. Inchbald of Storthes Hall.

SOLANACEÆ.—On the rubbish-heap before mentioned occurs **Solanum nigrum.*

APOCYNACEÆ.—**Vinca minor* is found in the greatest profusion in Storthes Hall woods, along with **Saxifraga umbrosa.*

LYTHRACEÆ.—*Lythrum hyssopifolium* has been found near the place where *Polypodium monspeliensis* has been discovered.

COMPOSITÆ.—At the rubbish-heap which I mentioned before, there are very fine plants of *Senecio erucifolius,* of which I have about three specimens. *S. saracenicus* grows in some plenty near Lepton, about three miles from here.

UMBELLIFERÆ.—*Myrrhis odorata* is found on the banks of the Calder, near Mirfield, and between that place and Colne Bridge.

ROSACEÆ and POMACEÆ. In Grimescar Wood, a large extent of forest about a mile and a half from here, there are several very fine trees of *Sorbus Aria.* I have also met with examples of the form *Geum intermedium,* of your Manual, near Mirfield.

LEGUMINIFERÆ.—**Medicago denticulata, M. mimina,* and *M. sativa* are all found near one another in the locality previously recorded in the 'Phytologist.' *Melilotus officinalis* is also found there.

Cruciferæ.—*Cardamine amara* grows near a brook about three miles off, on the Wakefield road; and I am told that *Berberis vulgaris* is found near it.

Geraniaceæ.—*Erodium moschatum* occurs on the rubbish-heap I have mentioned, along with an *Erodium* entirely unknown to me. [*E. malacoides.*]

Balsaminaceæ.—A friend who visited Bretton Park some weeks ago, tells me that *Impatiens Noli-me-tangere* is in great abundance there, forming, in fact, large patches in the park. Last, but not least, we have found an enormous tract of **Saponaria officinalis* on the banks of the Calder, below Colne Bridge.

BOTANICAL SKETCHES.

New Brighton Plants. By a Correspondent.

The author of the following notes and remarks having nothing new to tell about the plants of this interesting part of Cheshire, hopes that his communication may be acceptable although anonymous.

We left Leigh station on the Bolton Railway about nine o'clock on the 16th July, and reached Liverpool about half-past ten, and New Brighton about half-past eleven. The visitor's great object was to see and collect specimens of what is by our most critical botanists pronounced to be the only genuine representative of the true *Viola canina* of Linnæus and the Continental botanists. Whether it be so or not the present deponent does not venture to affirm nor to deny.

The following list, with the appended remarks, will, in order to avoid repetition, be arranged as in the usually received classification.

The only interesting plant among the Crucifers growing about New Brighton, where it is very plentiful, is *Brassica monensis* or *Sinapis monensis*, for it, like many other plants, has been several times changed from one genus to another. Its name, Isle of Man Cabbage, will serve for identification better than the more scientific appellations. There may be raised a question about the propriety of this name, for it does not possess many characteristics of the Cabbage, and it is not confined to the Isle of Man. But to the inland botanist it is an interesting plant, and he is pleased to see it, though its nomenclature be rather unsteady and its relationship to the Cabbage somewhat obscure.

Cakile maritima or Sea Rocket, appeared here and there on the flat sands at the base of the hills, a considerable distance beyond New Brighton. It maintains its common characters and habits everywhere, from the south of England to the shores of Lancashire, etc. Why its locality, "south of England?" is queried in the 'Handbook of British Plants,' perhaps the author will tell us. It certainly occurs in the Isle of Wight.

The only other Cruciferous plant noticed was a form or variety of *Cardamine pratensis,* a plant distinguished from the usual form by a very long, flexuous, angular stem, long radical leaves, with small, rounded, toothed leaflets. Leaflets of the stem-leaves linear, elliptical, elongate, numerous. Flowers large, white. Fruit four-angled, flattened. This, which was in flower and immature fruit, was collected in a ditch, near a pasture-field, two or three miles from the western end of New Brighton. It may possibly be a variety of *C. amara,* or a cross between the two species.

Reseda suffruticulosa, L., is now extensively naturalized near the very centre of New Brighton. This is one of the exotic species which are rapidly extending their limits in England. In Dr. Dickinson's 'Flora of Liverpool' it is described, "Sparingly on sand-hills beyond New Brighton." It is not *now* scarce. New Brighton has probably, like the plant, enlarged its bounds, for the town now extends far beyond the place where this wild Mignonnette grows abundantly.

The plant of special interest to us was the New Brighton Violet, noticed in the Liverpool 'Flora,' as *V. pumila,* Vil., and described under the title of *V. canina* in the most recent descriptive works on British Botany. Nyman in his 'Sylloge Floræ Europææ' does not enter England nor Britain among the names of the countries where *V. pumila* grows.

The New Brighton Violet has longish, flexuous, round stems, both the central and lateral ones productive. Leaves deeply cordate at the base, crenate, leathery, acuminate, the upper ones pointed. Stipules lanceolate, toothed or fringed. Sepals lanceolate, protracted and notched at the base. Capsules large triangular. Seeds large, smooth.

A correspondent to whom I sent a specimen, informs me that the leaves of the New Brighton Violet are like those of a plant collected by him in Italy, and which is called *V. montana* by some and *V. Ruppii* by others, and generally considered a form of *V. canina.*

Knotted Spurrey (*Sagina nodosa*) is a very common and conspicuous plant about New Brighton. Its stems are almost prostrate. Its petals are nearly twice as long as the sepals. Its habitat is on sandy flats, and on shallows on many parts of these sand-hills. Its obscure relation, *S. subulata,* would have been a welcome sight. But we were not so happy as to have an introduction to it. It is entered in the above-quoted 'Flora of Liverpool,' and is indorsed by F. Brent. I would thank Mr. Brent for a specimen addressed, E. J., 45, Frith Street, Soho, London.

Honckenya peploides grows here and there, but nowhere very plentifully, on the sands beyond New Brighton.

The members of the family *Geraniaceæ* are not particularly abundant about New Brighton. About a mile from the Light-tower, halfway between the influx of the rivers Mersey and Dee, I saw some plants of *Erodium* very like *E. maritimum.* But as this plant is not stated in the Liverpool 'Flora' to grow here, I leave it for future investigators. Some states of *E. cicutarium* approach very closely to the rarer species.

Ulex Galii is a New Brighton plant, *fide* Dr. Dickinson and T. Sansom. *Ononis arvensis* is one of the commonest plants on the sand-hills, accompanied by *Anthyllis Vulneraria.* Many states of the latter are to be met with, but we did not see any of the spinous varieties of *O. arvensis* which are reported to abound near Egremont. *Medicago sativa* is partially naturalized where *Reseda suffruticulosa* grows plentifully. *Lotus corniculatus* is also abundant on the sand-hills.

Many acres of the sand-hills are covered with *Rosa spinosissima,* which was, on the 16th July, finely in fruit. Next to a Salix (*S. fusca ?*) it is the most extensively distributed plant of these parts. *Potentilla reptans,* with its variety, *P. nemoralis,* Nestl., was particularly plentiful.

One of the conspicuous plants of these sands was *Sedum acre,* then in full flower.

The Sea Holly, *Eryngium maritimum,* appeared here and there, but nowhere in flower. Possibly the Floras which assign July and August as the time of its flowering anticipate its usual period of floration. We have seen it in parts further south in flower two months later than the time usually assigned. *Pimpinella Saxifraga* is met with sparingly. *Œnanthe Lachenalii* is plentiful in ditches at some distance from the coast. The wild Carrot appeared here and there in the pastures. *Hydrocotyle vulgaris* occurs, but not in flower, so far as our observation went.

Galium verum, Our Lady's Bedstraw, is nowhere more abundant and showy than on these hills, where the vegetation is somewhat of the scantiest.

The most conspicuous plant of the Composite Order, as an architect would name this family, is *Senecio Jacobæa,* common Ragweed. This plant, inelegant though it be, had a remarkable effect on the scene. The Goat's-beard (*Tragopogon minor,* we supposed) was far from scarce; but it had flowered long ago, and was now in fruit. *Hypochœris radicata* was nearly as abundant as the Ragweed. The only *Hieracium* noticed was what we have usually seen called *H. vulgatum. H. sylvaticum* of some authors is probably but a variety of that comprehensive species. A plant or two of *Erigeron acris* was noticed, but not yet in flower. *Aster Tripolium* was also absent.

Saline marsh plants were necessarily absent, for there is no marsh in these parts. The seaside Feverfew appeared sparingly on some sandstone rocks below the town. This plant differs but slightly from *Parthenium inodorum* (*Matricaria inodora,* L.). The two common Achilleas, *A. Millefolium* and *A. Ptarmica,* were plentiful enough.

Campanula rotundifolia, the pretty Harebell of Scotland, that "raised its head elastic from the airy tread" of the fair recluse of Loch Katrine, is surely as large and of as intense a blue as in the "land of the mountain and the flood." It could compete with the fairest of bonny Scotland's fair flowrets. We "who are not gifted with the *mens divinior,*" can only maintain that we never "saw fairer flower." It did not adorn a fair maid's brow at New Brighton, as at the island under "Benvenue's bold cliffs," but it was eminently beautiful notwithstanding. Flowers are graceful ornaments, whether wreathed as a garland, amorously entwining the clustered locks of a Grecian or a Scottish beauty, or only giving interest to the hillocks of sand thrown up by the waves and winds.

Another plant of this family was also very conspicuous, viz.

Sheep's Scabious, *Jasione montana,* a flower of Cheshire *par excellence.* We never saw it so large and fine anywhere else.

Of the Order *Gentianaceæ,* the neat-growing pretty Centaury musters in considerable force, as geologists say about their strata, organic remains, etc. The variety growing here may be what is called *Erythræa pulchella. E. linariæfolia* we did not see. We humbly ask the etymological and learned readers of the 'Phytologist' if the specific name of this so-called species be correctly written as above. Some spell it, *linarifolia :* what is *linari* from? As usual, the doctors differ about these niceties : who shall decide?

The Hound's-tongue, *Cynoglossum officinale,* a plant in some repute among horse-doctors, and not usually found in great quantity, is very plentiful here. A good load might be collected in an hour, and without traversing more than a very few hundreds of yards. *Lycopsis arvensis* also was seen, but not in abundance.

Linaria vulgaris, Common Toad-flax, was not scarce, but nowhere in flower. Its period of flowering is stated in our botanical books to be from June to September, a month too early at least for the cold shores of Lancashire and Cheshire.

While writing these notes, and casting a glance now and then at Dr. Dickinson's 'Flora,' which was, if I remember accurately, much praised in the 'Phytologist,' I perceive that under *Linaria Elatine* there is the following : "About Parkgate, rare, *T. Sansom.* Doubtless an outcast from some garden, *J. D.*" Do the Lancashire folks ornament their gardens with this weed? A crabby florist would say, "If they do sow this worthless species, then they may be easily and cheaply suited with ornamental plants."

The only curiosity among the Labiate family of plants seen, was a white-flowered variety of *Prunella vulgaris* or Self-heal, which some, with probability on their side, maintain should be *Slough-heal.* Self-heal, as a significant term, is just sheer nonsense, like several other terms. The virtues of the plant are forgotten in these our days. Botanists always take note of varieties. The variety is sometimes cultivated. Is it an outcast from gardens, like the *Linaria Elatine* above mentioned? *Mentha Pulegium* is reported to grow about New Brighton; but it lies under the ban of being "considered an outcast from some garden." This is not improbable. The herb Pennyroyal has been cultivated from time immemorial in gardens. I fear we must consider the introduction of the *Linaria Elatine* into gardens as a Lancashire peculiarity.

The banks about New Brighton

> "Want not the wild Thyme's spicy sweet
> To bathe in dew the roving feet"

of such as sniff the caller air from the Irish Sea.

Recent botanists, and some rather ancient ones too, make two species of our wild creeping fragrant Thyme. The following description of the two forms or species is drawn up from fresh plants collected on a kind of table-land on the New Brighton sand-hills.

Thymus Serpyllum. Stems prostrate, woody, with numerous branches. Leaves obovate or oblong-elliptical or ovate, tapering at the base, ciliated with long white fringes. Flowers in very short clusters. The two lower calyx-teeth are subulate and erect, the three upper teeth are dilated and reflexed. Corolla pale pink or rose-colour; upper lip entire, truncate; lower lip with three equal, obovate, spreading lobes. Stamens about as long as the lobes of the corolla.

The entire plant has a paler colour than the following.

Thymus Serpyllum, T. Chamædrys, Fr. Leaves oblong. Flowers in dense heads of a deep red. Corolla and stamens rather more elongate than they are in *T. Serpyllum.* The herbage is deep green.

Note.—I found both flowering at the same time and in close proximity.

Anagallis tenella was observed, but sparingly, in a moist place, not far from the western end of the town. There was a small pond of water near it, with some *Myriophyllum* in it. The sides of this little pond or pit were covered with numerous plants of *Samolus Valerandi,* a plant held in some honour by the ancient *religiosi* (Druids) of Britain.

The maritime *Plantago, P. maritima,* was well established on a red sandstone rock below the town, where I vainly expected to find the Sea Catchfly growing as plentifully as I have seen it on the sands or shingle at Itchin ferry. The Buckshorn Plantain, *P. Coronopus,* occurred here and there on dry places.

Two or three varieties of *Salix fusca?* cover large tracts of the depressions between the sand-hills. There are probably other varieties. These ought to be interesting plants, but like *Rubi, Hieracia,* and other disreputable genera, they "are made odious," as Mr. Watson truly says, "by books." We eschewed these troublesome plants.

The Orchids seen were few and far between, "like angels' visits." *Orchis pyramidalis* and *O. latifolia,* of each *one* specimen. Of other Orchids saw we "ne'er a trace."

Carex arenaria, Ammophila arundinacea, Phleum arenarium, and *Triticum junceum,* complete the list of plants noticed by us at New Brighton.

As usual, the list of plants we hoped to find and did not find is nearly as considerable as our real captures.

Silene maritima was expected; so were the Sea Lavenders and the Sea Pink, *Statices* and *Armeria maritima.* These we should not have expected had we known that there is no muddy shore between the Mersey and the Dee, or along that part of the shore which we traversed. The Sea Wormwood, *Artemisia maritima,* was not there, nor *Convolvulus Soldanella,* a plant which *does* grow on sand. *Pyrola rotundifolia* we only thought we had heard of as a New Brighton plant; probably a misapprehension, and therefore we could not see it, because we did not look in the right place. *Euphorbia Paralias* and *E. portlandica* were both expected, but they did not appear; no more did *Epipactis palustris.*

Notwithstanding our disappointments, we had a right pleasant day's botanizing at New Brighton, where we spent about five hours, and regretted that we were not able—time would not permit us—to walk along the whole extent of the coast to the estuary of the Dee.

The inland marshes, if there be any, probably produce *Parnassia, Pinguicula,* and *Utricularia;* of all these we did not see a single example. At an earlier period of the season this coast would repay inspection. Trefoils, *Cerastia,* early Grasses, probably *Knappia agrostidea,* might repay the search of the diligent botanist. I looked wishfully for *Lithospermum maritimum,* which I did *not* see, and now and then thought of *Echinophora spinosa,* which I did not expect to see. But I saw enough to convince me that I should like, when I have more time, and am well provided with the sinews of war, to pay another and a longer visit to New Brighton.

INSANE ROOT OF SHAKESPEARE.

> "Hast thou eaten of the insane root
> That takes the reason prisoner?"

If the potato be unmentioned in Shakespeare's Plays, the whole modern genus *Solanum* may be dismissed as not comprehending the "insane root." *Solanum Melongena,* the Egg-plant. *S. insanum,* Mad-apple; *S. Lycopersicum,* Love-apple, are all inadmissible.

The plant, whatever be its genus, is probably in the Order *Solanaceæ,* the general properties of which are narcotic and poisonous. Lois. Deslongchamps says, "Plusieurs passent pour être narcotiques, enivrantes, stupéfiantes, et la plupart sont regardées comme vénéneuses." Fuchsius calls one of them *Mala insana,* but this plant was not known to cultivators till the very end of the sixteenth century, and not likely to have been known to the great dramatist; and if it had, it would not have answered his purpose, because it was not generally known. We are compelled to fall back upon the Deadly Nightshade, which was undoubtedly well known in Shakespeare's time. It is described by the ancient herbalists as being narcotic and exciting: "Ils font devenir furieux ceux qui les ont pris (cinq ou six grains) et quelquefois les font dormir jusqu'à mourir."

This plant had the credit of causing Sweno's army to sleep their last sleep. The Scots are reported, fabulously indeed, to have mingled the juice of this herb, which they called Muckelwort, into the wine, ale, and pottage which they sent to the Danes. Although there be no truth whatever in this relation, it is quite true that both Hector Boece, and his follower Buchanan, and the paraphrasts Bellenden and Stewart, have accurately enough described this plant. It was known to them, or to some of them, at least, either by sight or by description. It was popular enough to serve Shakespeare's purpose. His knowledge of plants was not very extensive. The best herbalists did not know many. Barely a hundred herbaceous plants could be known in Scotland. If the plant called "insane root" is not *Atropa Belladonna,* what is it?

Note.—It may be necessary to remark that the word *root,* like *wyrt,* means occasionally at least the whole plant. It is not exclusively confined to the root as we call it.

THIRSK NATURAL HISTORY SOCIETY.

Botanical Exchange Club.

The monthly meeting of the Thirsk Natural History Society was held on the evening of Wednesday, the 3rd of November. In connection with the Botanical Exchange Club, Mr. J. G. Baker announced the receipt of packages from Miss Burton, Messrs. Carrington, Hobkirk, Ibbotson, Richardson, Syme, and Watson, and laid before the meeting the following notices:—

"*Sarnian Centaureæ.*—Through the courtesy of Messrs. Piquet of St. Helier's, and Fisher of Liverpool, we are indebted for examples of three species of this division of *Compositæ,* which are not acknowledged as British, all gathered by the former gentleman on the sandy shores of St. Ouen's Bay, in Jersey, a locality often mentioned in botanical registers as a station for species noteworthy as rarities. They are (unless I am in error as to their identification) *Microlonchus Clusii* of Gay (*M. salmanticus,* DC., *Centaurea,* Linn.), *Centaurea paniculata* of Linnæus, and *C. leucophæa* of Jordan.

"The genus *Microlonchus* is very nearly allied to *Centaurea,* from which the best mark by which to distinguish it is in the pappus, which is double, and has the inner row of hairs combined into a broad, unilateral pale or scale. The plant under notice has an erect stem, 3 to 4 feet in height, with numerous spreading branches; spinuloso-dentate, rigid leaves, the lowest runcinate-pinnatifid, the upper linear; solitary heads, ½ to ¾ of an inch in diameter; broad, coriaceous phyllaries, with short, spine-tipped appendages, and bright-purple, radiant, and discoid florets.

"The two *Centaureæ* both belong to the section *Acrolophus* of De Candolle, which is characterized by 'phyllaries furnished with imbricated, ciliated, spine-tipped, triangular, decurrent, scariose appendages, and seeds all furnished with a pappus; the umbilicus not bearded, in shape roundish or oval.' *C. panicu-*

lata has a stem about a foot high, bipinnatipartite radical leaves, with linear-lanceolate lobes rolled at the edges; small, solitary heads of flowers, forming a lax, elongated, spreading, much-branched panicle; the appendages of the phyllaries with a thick, adpressed terminal spine, short, but yet exceeding the lateral ciliations. *C. leucophæa* closely resembles *paniculata*, but may be known from that species by its flat-lobed leaves; pappus one-half shorter in proportion to the length of the seed, and by having the terminal spines of the phyllaries shorter than the flexuose lateral ciliations.

"All the three species are plants of France, but they are all confined in that country to the shores of the Mediterranean, and the southern part of the basin of the Rhone to Dauphiné, Provence, Languedoc, and the eastern Pyrenees; and none of them penetrate so far into the interior as to claim a place in Boreau's 'Flora of the Central Departments,' still less in Lloyd's 'Flore de l'Ouest.' The *Microlonchus* has only occurred in Jersey in small quantity, and has not been seen since 1855, at which date the example on the table was gathered. Of the fifty (*vide* Nyman's 'Sylloge') real or supposed species of *Acrolophus* which inhabit southern Europe, *C. maculosa* of Lamarck (which has often been confounded with the true *paniculata*, and labelled and described under that name, as, for instance, in the first edition of Koch's 'Synopsis') is the commonest, and the one which has an area that reaches furthest towards the north and west. It occurs at Orléans and Blois, carried down, say Grenier and Godron, by the Loire, from the mountains of Auvergne and Lyonnois. *C. paniculata*, and perhaps *leucophæa* also (they were both sent to me under the name of *paniculata*), has been met with in tolerable plenty on the shores of St. Ouen's Bay, and also in the Quenvais, the sandy tract of country which stretches from the bay for some distance inland. Mr. Piquet seems to hold *paniculata* an indigenous Sarnian, but I can call to mind only one plant (*Allium triquetrum*) which has its Continental distribution, that grows wild in the Channel Islands; and under the circumstances of the case, should prefer to wait for more complete information before receiving it as such.

"*Species introduced with wool into West Yorkshire.*—He exhibited a series of specimens, sent by Mr. Hobkirk, of Huddersfield, of plants found near Whitby, in that neighbourhood, the seeds of which, there seemed reason to believe, had been introduced along with wool, the refuse of which is not unfrequently used to spread over cultivated fields. The species forwarded by Mr. Hobkirk were: *Leguminosæ,*—two British, *Medicago maculata* and *denticulata;* *Gramineæ,*—one British, *Polypogon monspeliensis;* four south European, *Lappago racemosa, Phalaris paradoxa, Digitaria sanguinalis,* and *Echinochloa Crus-galli;* one West Indian, *Chloris compressa.* He mentioned also having received from the Rev. G. Pinder, *Medicago denticulata,* and an Australian species, *Erodium cygnorum,* which had occurred under similar circumstances in the vicinity of Guiseley.

"*West Yorkshire.—Potentilla fruticosa:* Mr. Hobkirk sends a specimen of this species from a field near Bretton Park, ten miles from Huddersfield, where it grew along with *Impatiens Noli-me-tangere.* The *Potentilla* is registered in the Mag. Nat. Hist. as growing on the limestone tract near Doncaster, but I am not aware upon what personal authority the record rests, nor that the plant has been seen there lately. The *Impatiens* is not known as a spontaneous plant elsewhere in Yorkshire. This station merits further investigation.

"*East Yorkshire.—Convolvulus Soldanella:* Mr. Baines informs me that this species, which is new to Yorkshire, has been found this season amongst the sand-hills of the Holderness coast, near Withernsea, by Mr. Smith, of Hull."

Reviews.

Worcestershire Journal, a Weekly Periodical of News, Politics, etc.

To an unknown correspondent we are indebted for a copy of this paper, from which the following extract is taken:—

"WORCESTERSHIRE NATURALISTS' FIELD CLUB.

"The members of this Club held their Midsummer meeting on Friday last, within the dense umbrage of Wyre Forest, near Bewdley, one of the few remnants of ancient woodland yet remaining in the country. The muster was at Kidderminster, from whence carriages took the party through Bewdley, a short distance beyond Mopson's Cross, on the Cleobury road, and here scientific exploration commenced amidst delicious sylvan scenery, bounded in the distance by the basaltic Clee Hills and the Shropshire Wrekin, and its dingles watered by rambling brooks, where—

> 'Half-hidden from the world besides,
> Sweet hermit Nature in the woodland hides.'

Among those assembled for forest adventure we observed Edwin Lees, Esq., F.L.S., Vice-President of the Club, W. Matthews, Esq., F.G.S., Honorary Secretary; the Revs. J. H. Thompson, C. Glyn, W. H. Helm, John H. Whiteley (Pedmore), and Alfred Bromfield; Dr. Strange, Messrs. J. D. Jeffery, Edward Gillam, T. Baxter, H. Lines, J. De Poix D. Tyrel, — Robertson, J. B. Piercey, R. Gardner (Kidderminster), G. E. Roberts, E. Ball (Bewdley), G. Jordan, Haywood, Gilbert, Ponting, Cooke, etc.

". . . It had been arranged that a repast *al fresco* should be provided under the celebrated old Sorb, or 'Whitty Pear-tree,' as commonly called, in the midst of the forest shade, and to this point, towards three o'clock, hope and effort was turned, and many a shout rang through the woodland shade long unanswered; but after a time, through the blooming heather and long fern of grateful smell, an answer came; and at last, relieving every fear, Mr. Jordan, the Botanical Custos of the Forest, came into view, and all finally surrounded the acceptable spread which had been *tastily* displayed on the grass by the worthy host of the 'Crown' at Bewdley, with all the required appendages, and three smiling forest-nymphs to wait upon the tired wanderers. Amidst the festal scene the old Sorb-tree appeared, the withered wreck of centuries, and after the repast was concluded, the Vice-President of the Club gave a sketch of its history, suggesting that as it was the only individual of the *Pyrus domestica* that existed in Britain in an apparently wild state, it was in reality of foreign origin, and not improbably brought over from the south of France by some recluse in the reign of Edward III., when the Duchy of Aquitaine was held by the English, as this species of *Pyrus* was known to be indigenous on the slopes of the Pyrenees. For centuries it had been here regarded with the same superstitious regard that in Scotland was attached to the Mountain Ash or Rown-tree, the memory and even the faith in which yet remained. . . .

"The plants found were almost too numerous to recount, but two may be particularly mentioned as discoveries—the *Cerastium arvense*, a rare species, found a few days before in some abundance in a sandy field, by Mr. Ground, and exhibited; and the *Lilium pyrenaicum*, met with within the forest bounds in a naturalized state, though probably derivable from some former old garden past and gone. Other plants noticed or gathered were, *Rosa villosa*, *tomentosa*, and *inodora*, *Rhamnus Frangula*, *Geranium sanguineum* and *sylvaticum*, *Pyrola minor*, *Myosotis repens*, *Pedicularis palustris*, *Scutellaria minor*,* *Anagallis tenella*, *Orchis latifolia* and *incarnata*,

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* Not long after this botanical *fête* in Wyre Forest was celebrated, viz. on the

Gymnadenia conopsea, Habenaria bifolia, Epipactis palustris, Triglochin palustre, Carex fulva and *vesicaria, Eriophorum latifolium, Equisetum sylvaticum*, and *Lastrea Oreopteris*."

Some years ago a writer in the 'Phytologist' took some exceptions to the above account of the origin of the old Sorb-tree of Wyre Forest, which account we remember having heard before, as the Vicar of Wakefield remembered Jenkinson's account of a cosmogony. The said writer, who took a different view of the introduction of this tree, maintained the improbability of the conjecture on the following grounds, which are hereby respectfully submitted to the consideration of the Vice-President of the Worcestershire Natural History Society:—

1. J. L. asserted that the recluse could not have brought the tree so far, at least in a living state, or, in other terms, that it would have died before he could have transported it from the slopes of the Pyrenees to the slopes of the Severn, a distance which could not have been traversed, in those medieval times, in a short period.

2. It was probable that he knew the tree, or he would not have taken the trouble of carrying it or conveying it so far. Also, it was more than probable that, knowing it, he would not have thought it worth bringing, and therefore it was improbable that he did bring it, for the following reasons:—1, that the tree is a hundred years old before it bears fruit, which he could hardly expect ever to eat; and, 2, that the fruit, when produced, is of so austere a character as to be uneatable.

Hence J. L. suggested that, as the recluse could have had no adequate motive for incurring so much toil in bringing and planting what would be absolutely worthless to him, therefore that said recluse did not introduce said tree. Q. E. D.

Another writer in the 'Phytologist' conjectured that the famous Sorb of Wyre Forest was obtained from the garden of the elder of the Tradescants, who cultivated and kept a collection of exotics in a garden at Lambeth. Some people believe that the

last Friday of June, 1858, the writer of this notice, not of the *fête* itself, but of the occurrence of it, was favoured by one of the parties, who partook of these festivities with a plant not mentioned in the above list. I had in the first week of July sent to me two species or forms of *Pyrola*, one usually called *P. rotundifolia* (*P. media*?), and the other *P. minor*. The former is the rarer of the two *Pyrolas* that are believed to grow in the forest.—A. I.

tree in question is older than the time of Charles I. This may be true or it may not; but the second conjecture would be more feasible if there was any proof that John Tradescant the elder, or the younger either, ever had a genuine Sorb-tree to spare from their arboretum. This proof is not forthcoming; on the contrary, there is a negative proof, which casts some doubt on this supposition; viz. that this tree is not in the catalogue of their plants cultivated at Lambeth. The origin of the Wyre-Forest example of the tree has still to be discovered. *Adhuc sub judice lis est.*

The Critic, a Weekly Journal of Literature, Art, Science, and the Drama. July 10, 1858.

The readers of the 'Phytologist' are requested to bear in mind that although periodicals form the staple of our Reviews for this month, yet there is no intention of reviewing any review. We are glad to have the opportunity of commending to the notice of our readers these works, which we have read ourselves with both profit and pleasure. In the present instance we merely announce that in the 'Critic' of the date above stated, there are several reviews of botanical works, only to be briefly noticed here.

1. "Short Lectures on Plants, by Elizabeth Twining."—Miss Twining's Lectures, twelve, were originally delivered to the adult females, in an institution called the Working Men's College, and they were so well received that the fair author has been induced to give them a wider circulation through the press. As they were originally prepared to suit the comprehension of working people, it is likely that they would meet the requirements of those who are endeavouring to introduce botany into village schools, and who believe that the natural sciences are important and attractive educational means.

2. "The Wild Flowers of England, by the Rev. Robert Tyas."—This is a serial publication, which has now reached its third part. It is an illustrated work on the wild flowers of England, and the descriptions are relieved by scraps and morsels of choice poetry.

3. "British Wild Flowers, by J. E. Sowerby," we have already noticed at considerable length, and the writer of that article will

be delighted to see that his opinion of the work is justified by that of the reviewer in the pages of the 'Critic.'

4. "How Plants Grow; a simple introduction to Structural Botany, with a Popular Flora."—We take exceptions to the term "popular," as being a meaningless claptrap. Everybody tries to construct and to compose his work in such a manner as that it may be read, relished, or used by the greatest number of readers possible. Some affect to despise the *vulgus profanum, turbam porcinam,* or in plain English, "the unshaven and untaught;" but they do not despise the halfcrowns and shillings from the greasy jacket-pocket, nor the praise of the readers of books, belonging to mechanics' institutes. The term "popular," in our mind, takes the complexion of an insult to the understanding of a working man. Are we to have one style for the *beau monde* and another for the *canaille?* The humble man, or the man of humble degree or of low caste, as they speak, who mean to insult the labouring classes, would rather read *up* than read *down.* He would make an effort to apprehend the language of his betters; he would not thank the author who had so mean an opinion of his ability as to treat him to an intellectual slipslop, that a sensible man would not set before his children. It is a great mistake to imagine that those whom the learned, in their ignorance and self-sufficiency, call the uneducated classes, will condescend to learn from these *readings made easy.* Dr. Gray's 'Popular Flora' is only a sample of a popular Flora, or a specimen of the way in which the knowledge of the structure, physiology, etc., of plants is to be used. We wish the Doctor and his coadjutor, or some coadjutor or some botanist as well acquainted with American plants, would complete the American Flora so auspiciously begun many years ago.

We honestly recommend the 'Critic' to our readers, because its critical articles are not written in a snappish, waspish tone, but are as much distinguished for courtesy and geniality as for good taste and literary ability.

The Friend, Tenth Month, 1858.

This number contains an account of the Mammoth trees of California. We suppose they are so called from their gigantic dimensions. The name is not a very appropriate one: But let this pass. Several months ago some of the largest were noticed in the 'Phytologist,' and it is our impression that their size was compared to that of the dome of St. Paul's. It appears that there are now 134 trees of above 15 feet in diameter. The largest is 34 feet, and 2 of 33 feet diameter; 13 from 25 to 33 feet in this dimension; 36 from 20 to 25, and 82 from 15 to 20. A fallen tree, partially burnt, is believed to be about 40 feet in diameter.

The entire grove is three-quarters of a mile long, and half a mile wide, and contains 427 standing trees. The height of these enormous trees is from 275 to 325 feet. One tree, in another mammoth grove, (there are several of these in California,) which is down, measures 450 feet in height (length), and is 40 feet in diameter at the butt end.

These accounts are from an American Journal, the 'New York Tribune.' But there is a portion of one exhibited in London, now in the Crystal Palace. *Ex pede Herculem.* Some of our readers may have an opportunity of seeing it, and "seeing is believing."

In the 'Friend' there is a short paper on the "beauty of seaweeds," or rather an extract from a work by the Rev. J. G. Wood, on "the common objects of the sea-shore." The author recommends Green Laver as the very best of the seaweeds for an aquarium, because "after the Metropolis has been invested in one of its ugsome canopies of smoke, and when the sun is able to penetrate through the thick veil of murky vapour, the *ulva* (seaweed) rises in the water and hangs in most elegant festoons, forming emerald caves and grottoes, such as the sea-nymphs would love." But there are more beauties in reserve for the lovers of this elegant mode of amusement. "Excited by the unwonted light, the plant had poured forth so much oxygen that its entire surface was thickly studded with tiny sparkling beads, that had buoyed up the whole plant, each bubble being a miniature balloon." When however the Metropolitan black mantle was spread over the sun's disc, the bubbles burst, like the Royal British Bank, and down fell the whole concern.

Professor Agardh's new Work on the Classification of Plants.

We have very great pleasure in announcing the arrival of the above-named work. Our readers will excuse an extended notice of its contents, which they will see in the 'Phytologist' for next month and next year. When they are informed that what the author calls the *methodology* (methodologia) of the system fills nearly 100 pages, closely printed, imperial octavo, and that the natural series of the Phanerogamous plants occupy upwards of 400 pages more, and that the Latin is not so easy as the language of Cicero, Horace, Virgil, and Cæsar, they will admit that it is no schoolboy's task to master the principles and details of an entirely new system, conveyed in a style which may be both pure and perspicuous, but is by no means so easy as that of Linnæus. We hope Professor Agardh will excuse this, as we hope our readers will excuse us for not at present entering more deeply into the subject.

The work appears to have been prepared with the greatest care. Both the letterpress and the diagrams are most elaborate. It is no mere hotchpotch, patchwork treatise, composed of bits from Linnæus, Jussieu, De Candolle, Unger, Endlicher, Lindley, etc., well shaken together and mixed *secundum artem.* It is a genuine work. The thought and labour bestowed on it must have been immense. It is a memorable example of deep research and patient investigation.

It would be a vain speculation to anticipate what reception it will receive from British botanists. Probably few would like the trouble of learning a new system. When Linnæus brought his method into England, both himself and his scheme of classification got a reception which was far from friendly. The great botanists of that period presented him with the "cold shoulder." Linnæus was a young man then, comparatively unknown; Agardh is surely *not* a young man, and he has been celebrated for a quarter of a century as the most eminent living Algologist. We hope his new work, the 'Theory of Classification,' will be as famous and more permanent than Linnæus's was. He can hardly receive a more generous wish or more liberal praise. The 'Phytologist' never had a more important communication to offer to the botanical public.

We have room only to tell our friends that the present division of the Natural Orders is broken up, and the old time-honoured terminology abandoned. We wish we could say that substitutes had been found for them; but this does not appear to have been proposed by our author as a part of his task. He thinks that after all an artificial system will be requisite, that is, if we understand him aright. The terms Monocotyledons, Achlamyds, Monochlamyds, together with "*omne* quod exit in -*gens*," Cyclogens, Spermogens, Gymnogens, with the still more ambitious, learned-like terms Acrobrya, Anophyta, Hysterophyta, Peristamineæ, etc., *quas nunc præscribere tædium est*, are apparently abandoned.

From our present imperfect knowledge of our author's book, it is suspected that the key to the principles on which his system is founded, is in the terms *structuræ norma* and *evolutionis gradus*, or in plain English, in the structure and development of the species. But those who are interested in the matter will doubtless study the system for themselves.

We will give the subject our earnest attention, and we hope to be able to lay before our readers such an outline of the principles and details of the system as will help them to understand what it is, and to judge of the merits of the work. This effort to establish the science of botany on a sound foundation is a noble attempt in the right direction. Other and probably younger men will have to labour for its completion.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Dr. George Lawson.

We have much pleasure in aiding the circulation of the following information. Many of our readers know the gentleman personally, all of them know him by name and report. The testimonial is as honourable to the donors as to the receiver. Our space will not admit of the eloquent addresses which were delivered on the occasion :—

"Professor Balfour then presented to Dr. Lawson a handsome silver salver, with this inscription :—'Presented to Dr. George Lawson (along with a purse of sovereigns), on the occasion of his departure from Britain to fill the chair of Chemistry and Natural History in Queen's College, Kingston, Canada, by some of his friends, who desire thus to testify their regard and esteem for him, and their appreciation of the services he has rendered to science in Edinburgh. August 5, 1858.'"

Claytonia Alsinoides.

We are indebted to our estimable correspondent, Mr. Sim, of Perth, for the following, and we beg to state that this is a notice of the third naturalized exotic which he has discovered and communicated to the 'Phytologist' within the past twelve months :—

"I first observed the *Claytonia alsinoides* near the *Aremonia* station in 1856, plucked a few plants, but was sadly baffled to find out its name. I knew it belonged to the Natural Order *Portulacaceæ* from its bisepalous calyx, but that was all. I got a few more plants of it last year, and after searching my Botanical Dictionary from beginning to end, I found that the generic description of *Claytonia* perfectly agreed with my plant. The next point to be settled was, what *Claytonia* is it? Only two are described in my work, and it is neither of these. I got a look of Loudon's 'Encyclopædia of Plants,' and found it to be *Claytonia alsinoides*, which in that book is, I think, represented by a figure. I visited Scone Wood this summer for a supply of the *Aremonia*, but neglected to look particularly for the *Claytonia*. No doubt many will say it is an escape from a garden, but I think that in this case, and also in that of the *Aremonia*, such an opinion is untenable, especially as the plant in question is an annual, a low, succulent, inconspicuous plant, and would be considered, I am sure, by any gardener or nurseryman neither pretty nor ornamental. It very much resembles, as its specific name denotes, one of our *Alsines* or Chickweeds. Unlike the place where the *Potentilla* is found,—near rubbish from nurseries,—no rubbish is here of any description, but, like the *Aremonia*, it takes shelter under the trees of the wood. I cannot form even a conjecture respecting its introduction to this spot. I believe the only known habitation for it is Nootka Sound. *C. perfoliata*, with spathulate leaves, has been found in several places in England. I cannot decidedly say the extent of surface it covers, but if I am living and well next May, I intend to visit the spot and procure a supply, and ascertain more exactly the area of its distribution. I should say I saw it plentifully in 1856, covering about a quarter of an acre of ground under the tall trees. John Sim."

"Horse" Plants, etc.

The perusal of your article in a recent number of the 'Phytologist' respecting the word *Buck* has induced me to consider what can be said on behalf of plants having the prefix *Horse*. They are numerous, and the same rule applies with regard to the meaning of the word *horse*, as relating to certain plants, that we find in the word *buck*, though in the present case the word means *size*. For instance, we have Horse Chestnut, Horse Cucumber, Horse Radish, Horse Mint, Horse Purslane, Horse Rape, etc.

I think there is no difficulty in saying that these names indicate *plants* which are distinguished for their size compared with some others. The word *horse* is used as a prefix to other words which have a similar meaning, to signify size and strength, such as horse-leech, a *large* leech; horse-martin, a *large* kind of bee; horse-muscle, a *large* muscle; horse-crab, a *large* crab; horse-emmet, a *large* ant; horse-fly, a *large* fly. We have also horse-fall, a *large* fall; horse-godmother, a *large*, coarse woman; horse-bough, a *large* bough; and equally significant we have *Horse Guards*, who will admit that they are *large* enough and strong enough for any one. As to the derivation of the name of this *animal*, the Horse, some of our dictionaries tell us that it is derived from the Saxon *hors;* and *Horsa*, the Saxon chief, was so called from the figure of a horse borne on his coat of arms. This name, so given by our Saxon ancestors, might have been to signify what the first of the family possessed, namely, *power* and greatness. We all know that the horse proverbially possesses *power*, and it is a common saying, "as *strong as a horse*." H. B.

ATROPA BELLADONNA.

Several notices have appeared in your interesting journal relating to poisonous plants, and their effects upon persons who have eaten them by mistake. The enclosed account of poisoning by the berries of the *Belladonna* may be worth recording. It also shows the locality of the plant, and may assist some of the curious in ascertaining whether the root of the *Belladonna* was the insane root of Shakespeare referred to in the play of 'Macbeth.' The berries in the case reported certainly produced deleterious effects upon the persons who ate them, but I do not know any instance recorded of the same effects being produced by eating the root of the plant, but I should like to find one. The question has been mooted in your journal as to the range of this plant, and some one has told us it grows in Fifeshire, the site of the blasted heath where Macbeth met the witches (?), but I do not find that the question has been satisfactorily cleared up. HARRIET BEISLY.

"In looking over my duplicates, collected during the year, I find amongst others the following rare plants:—*Narcissus Pseudo-Narcissus*, *Vinca minor*, *Polypodium calcareum*, *Corydalis lutea*, *Linaria repens*, *Digitaria sanguinalis*, and *Setaria viridis*, and also a few of *Medicago denticulata*, *M. sativa*, *Polypogon monspeliensis*, and *Phalaris paradoxa*, any of which, together with a list of other duplicates, I shall be glad to forward to any botanist requiring them, in exchange for other rare British plants. Address, T. W. B. INGLE, 4, Commercial Street, Huddersfield."

Communications have been received from

John Sim; G. Henslow; J. Y. Brocas; J. B. Wood, M.D.; Anon.; J. G. B.; J. E. Sowerby; J. G. Baker; H. C. R.; R. K.

BOOKS RECEIVED FOR REVIEW.

Thwaites' Enumeratio Plantarum Zeylaniæ. Part I.
Pliny's Natural History; by Riley. Vol. V.
Moore's Index Filicum. Part V.
Natural History Review for September.
Agardh's Theoria Systematis Plantarum, etc.

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* It is hoped that the precedence of Ben-Nevis, as the highest mountain in the British Islands, is now finally established. Ben-Nevis is 4406·31 feet, Ben-na-muic-dhui, 4295·73 feet. The former exceeds its rival by above 110 feet.

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THE BRAMBLE.

Thy fruit full well the school-boy knows,
  Wild bramble of the brake;
So put thou forth thy small white rose,
  I love it for his sake.
Though woodbines flaunt and roses blow
  O'er all the fragrant bowers,
Thou need'st not be ashamed to show
  Thy satin-threaded flowers.
For thou, wild bramble, back dost bring,
  In all their beauteous power,
The fresh green days of life's fair spring,
  The boyhood's blossomy hour.

Elliott.

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